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No. 1

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BOARD OF FISH COMMISSIONERS

JANUARY
1935

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PENNSYLVANIA ANGLER

JANUARY, 1935
Vol. 4 No. 1

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EDITORIAL

Sucker Fishing

I believe that if a census could be taken on the number of fishermen who indulge in various types of the angling sport in Pennsylvania, sucker fishermen would comprise an exceptionally large group. This form of fishing has been constantly growing in popularity during recent years and suckers today rank as important fish in our inland waters. Caught in autumn, winter and spring, when their flesh is firm and sweet, they are delicious food fish.

Perhaps one of the most encouraging omens pointing to better all-round sport for Pennsylvania fishermen has been the rapid increase in number of the sucker schools in many of our streams during recent years. This increase may be attributed to two factors, first, the outlawing of the spear or gig in taking suckers and second, stocking of suckers whenever possible by the Fish Commission.

It is significant, relative to the growth of interest in sucker fishing, that most of our warm water streams containing large numbers of these fish are usually easily accessible to fishermen in various sections of the state. Whether an angler wishes to fish with rod and reel or with the old-fashioned cane pole and sturdy line, his chances of making a catch are equally good. Regarded in this light, still-fishing for suckers is perhaps the most cosmopolitan form of angling. It appeals not only to many fishermen who also enjoy fishing for bass and other

game fish but to the boy who follows the sport with a can of worms, cut pole and heavy line.

Fishing for suckers also has another appeal—it is restful and there is in the chill atmosphere along the stream a fine chance to relax, to enjoy the comradeship of other fishermen and often a fire of driftwood burning near the poles. Of course, there is not the thrill of rod tip swishing to the surface as a bass makes its first run, but counter to it, that deliberate and slight tugging as the fish takes the bait creates just the sort of suspense that makes fishing a great sport. In those mild days that often come in March and early April, when the call of trout streams becomes increasingly strong as the season approaches, many anglers find in sucker fishing an opportunity to answer the fishing urge coincident with early spring.

The sucker is by nature a bottom feeder, and as such it has at times been accused of destroying the spawn of other fish. Its destructiveness in this line, however, has probably been overemphasized. Lacking the aggressive ways of the bass, pickerel or trout, it is no match for any game fish in combat. On the other hand, thousands of its young are available as game fish forage, an important consideration in any stream. In preserving the proper balance in our fishing waters, this species is an important asset.

From an economic angle, suckers probably rank with our most important

fishes. So general is their range, that waters in most sections of the state yield thousands of them annually and they consequently are an item of food in many households. A catch of five suckers, averaging one and one-half pounds in weight, is sufficient to provide a family of five persons with sufficient meat for a meal.

When the suckers gather in great schools at the juncture of tributary and main streams in the spring of the year, preparatory to their spawning run, locations of this type are usually popular fishing spots. It is not unusual to see, for instance, at the juncture of a tributary stream to the Juniata River, a great sucker stream, perhaps fifteen or twenty fishermen. On a good fishing day, when the suckers are actively feeding, catches are often general.

The importance of variety in fishing for our Pennsylvania anglers is clearly illustrated in the instance of sucker fishing. Its wide range, and the readiness with which it takes the hook, offers an opportunity for the fisherman to enjoy his sport when the season is not open on warm water game species such as the bass.

There is much to commend still-fishing for suckers and it is deservedly becoming more popular here in Pennsylvania.

M. Driber

Commissioner of Fisheries.

Stream Improvement Work Pushed in Lancaster County

By **OLIVER M. DEIBLER**
Commissioner of Fisheries

THAT stream improvement or rather stream farming is being taken seriously by the conservationists among our fishermen is attested to by the fact that in many of our counties throughout the State, stream improvement projects have been inaugurated, and some very commendable work has been accomplished.

In quite a number of counties the sportsmen have taken advantage of the Emergency Relief Funds made available for work projects, as practically all the cost involved in stream improvement work is labor, and in cases where material was required, the local sportsmen have supplied these materials from their own funds.

One of the foremost projects of this kind, and insofar as we know, the first to take advantage of these Federal Funds was the Lancaster County groups. Through the untiring efforts of Mr. R. S. Sullenberger, the idea was sold to the County Commissioners and the Relief officials, and a very sizeable appropriation was approved for three of the important streams in Lancaster County. The Board of Fish Commissioners furnished their engineer, Mr. Thomas O'Hara, who went over these projects with Mr. Sullenberger and the foreman of the works, and assisted in laying out a program that has progressed most satisfactorily, and will without doubt result in a greatly improved condition of these streams. The carrying capacities will be materially increased, as the prime factors necessary to increase capacities are measured by the amount of food available and the shelter provided.

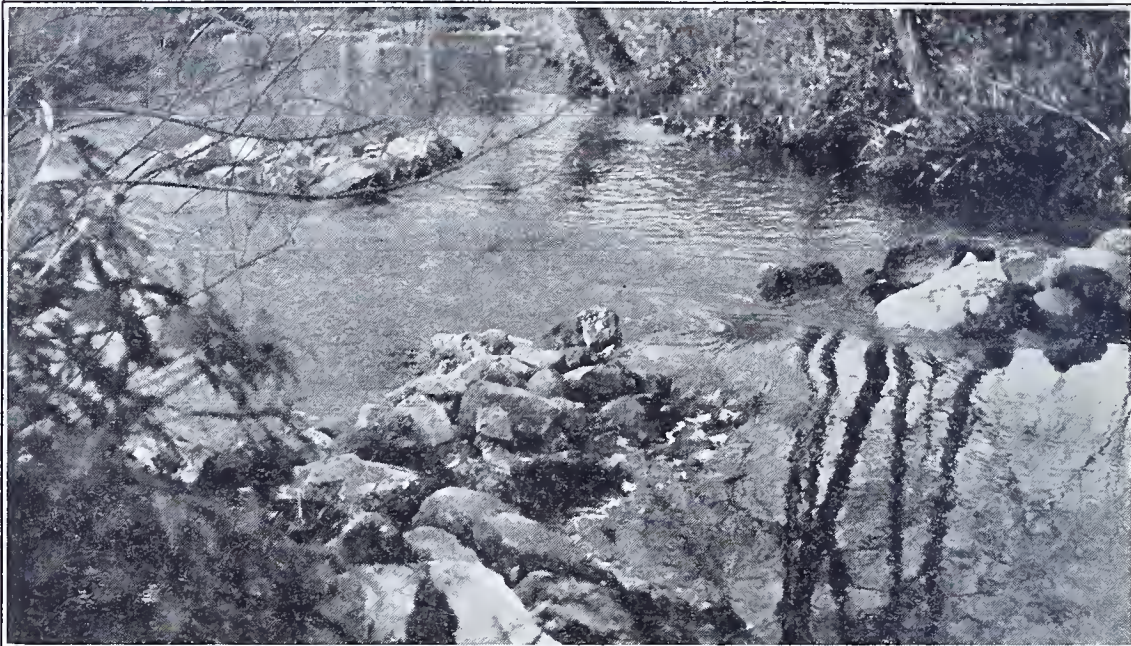
That these requisites have been supplied becomes self-evident the minute any one goes over the stretch of streams that have so far been completed, and for the benefit of those who may not be privileged to visit any of these projects in Lancaster County, we are presenting a number of photographs that were taken soon after the work was started.

The substantial manner in which this work has been done and the amount of funds secured for this work most certainly reflects great credit on the persistency of Mr. Sullenberger and all those who in any way assisted in procuring for this county this appropriation.

The Sportsmen of Blair County have also been most active and have some excellent results to show for their activities.

Indiana and Center County projects have been approved and in quite a number of other counties they are now being worked out and it is hoped they may all be successful, and also that the conservationists throughout the State will avail themselves of the opportunity that is now presented of securing Federal Funds to assist in this work.

In closing, I want to emphasize the fact that trout streams are not the only waters that should be considered from the angle of increasing carrying capacity for fish life. Streams harboring warm water species are also to be listed with those that can be definitely improved in this way for fishing.



CATCHES BIG PIKE ON NORTH BRANCH

Famed for its smallmouth bass fishing, the North Branch of the Susquehanna River, yielded a big wall-eyed pike on November 20 to Grant Peifer of Watsontown. Peifer's catch, measuring 27¼ inches in length and weighing 6 pounds, 14 ounces, was one of the largest pike to be taken from the Branch in recent years. It was caught in the vicinity of Wyalusing, favorite fishing ground for many Pennsylvania fishermen.

At the time he made the catch, Peifer was fishing with his friend F. H. Schulze of Wyalusing. They were using spinners designed by the Watsontown fisherman when the big fish struck. It was landed after half an hour of careful playing.

DISPLAYS FINE BASS AT EASTON MEETING

The November meeting of the Easton Fish and Game Association was held on Tuesday evening, November 27. There was a fair attendance.

Henry Diehl, one of the most successful anglers of small mouth black bass which he landed during the last week in September. It measured 19 and a fraction inches in length and weighed 5¼ pounds. Mr. Diehl states that this is not the largest bass he caught in 1934 and that he had landed some beautiful specimens of pike at Lake Wallenpaupack.

Mark Hilburn, chairman of the fish committee, made a report of the stocking that had been done since September 28, when he made his last report. The report was very gratifying. The stocking included trout, bass, sunfish and tadpoles.

The Association will hold a Christmas party at their meeting on the evening of December 28. There will be a Christmas tree, Santa Claus and everything that goes with a Yuletide affair.

The question of identification buttons to be worn by members of the club was taken up and after some discussion a committee was appointed to ascertain if there would be any benefit derived from the use of them.

The treasurer reported two new members, making a total of 575 and a balance in the treasury of \$417.91.

AGE OF FISH

According to studies made by Dr. Ralph Hile of the U. S. Bureau of Fisheries, the age of fish may be determined by the "year ring" in their scales. He says that the yearly growth of fish leaves its mark in the scales in much the same way growth rings are left in trees. Fish scales suspend growth in winter and when they begin to grow again in the spring a new ring is formed. These rings may be counted under a microscope to determine the age of fish.

NOVEMBER PIKE

Warden Frank Brink of Pike county has reported that during November the famous Upper Delaware, Pennsylvania's premier wall-eyed pike stream, yielded other big catches of these fine game fish.

Roscoe Gurley of Milford landed 8 pike, each weighing over 5 pounds, and another weighing 6 pounds, in a day's fishing. Joe Laton, Dingman's Ferry, caught a pike weighing 7 pounds, 4 ounces.

Montgomery Sportsmen Honor J. Hansell French

At their 46th annual meeting, more than 200 members of the Montgomery County Fish, Game and Forestry Association extended congratulations to J. Hansell French, their Vice-President and a leader in conservation activities of the Association, who has been named by Governor Earle to serve as Secretary of Agriculture in his administration. A resolution adopted at the meeting highly commended Governor Earle for the wisdom of his choice for Secretary of Agriculture.

The members heard and enthusiastically approved this resolution read by Attorney Carroll G. Hoover in which he lauded the fine work Mr. French had accomplished during his presidency of the Association, and spoke of his outstanding capabilities and the personal magnetism that has won him a host of friends.

Attending the meeting, regarded as one of the most successful ever held, were three charter members who could recall the first session held in Norristown 46 years ago. They are Samuel Cope, George T. Herr and Harry Elston. Each recalled incidents that had occurred at that time.

During the business session, reports were heard on the various activities of the Association and the following officers were re-elected for 1935: President, Judge Harold G. Knight, President of the Montgomery County Courts; Vice-Presidents, J. Hansell French, Burd P. Evans, H. H. Ganser and Charles C. Hughes; Treasurer, B. Frank Nyce; and Secretary, J. Warren Zeigler. Members of the Executive Committee who will serve in addition to the standing committees include J. H. Beidler, A. T. Bertollette, Dr. Edgar S. Buyers, S. H. Cope, Charles A. Dillon, Arthur R. Francis, H. C. Fratt, W. R. Gordon, George W. Haag, Howard Hampton, Lloyd Heebner, Stanley H. Hunsicker, Harry J. Kulp, Leon Nester, Andrew H. Pflueger, John



J. HANSELL FRENCH

P. Reiff, George Sinclair, E. C. Clymer, George H. Steinmetz, Henry G. Unger and A. J. Wilson.

The speaker of the evening was C. R. Buller, Deputy Commissioner of Fisheries. Taking as a topic, the black bass, he told of its habits and the distribution system now in effect for the stocking of this popular game fish. The vital necessity of balanced stocking of our waters was emphasized and the speaker then explained the co-relation of species in the various streams and lakes.

PREFER NORTH BRANCH FOR BASS FISHING

Bass fishing is a hobby with Mr. and Mrs. Charles Welteroth, of Kingston, who have lured the battling bronzebacks from waters in many sections of the United States and Canada. But when it comes to sporty bass fishing, according to Warden Russell J. Womelsdorf, of Kingston, they declare that the North Branch of the Susquehanna River tops every stream they have ever tried.

It is an appealing bass water, in their opinion, nothing marring its winding beauty. Riffles and eddies are mixed in just the right proportion, inviting fly or bait. Ten seasons of fishing on the Branch have rewarded them, without exception, with fine creels of smallmouth bass. On a number of occasions last season, each landed 10 bass. They favor helgramites and stone catfish as lures.

If the native says there's no fishing, give it a try yourself. The fish may be on the lookout for some new bait, and you may have it.

FISHING BETTER IN LEHIGH RIVER

For years, pollution in the Lehigh River from coal culm and sulphur water has retarded fishing in that stream. But now, according to Warden Joel Young, of Fullerton, apparently better catches are being made.

"This year," he writes, "I paid special attention to the fishing in the Lehigh. I found fishermen at Hokendauqua catching yellow perch and catfish, while at the mouth of the Catasaqua Creek they were catching yellow perch, catfish and suckers. At the Hamilton Bridge, in Allentown, catches of yellow perch and catfish were made, while fishermen were taking suckers and silver chubs at Kimmets Lock below Allentown, catfish, sunfish and occasional rock bass at Bethlehem, suckers and trout at the mouth of Monocacy Creek, and yellow perch, catfish and suckers at Easton near the mouth of the river. Have noted more sucker and eel fishing this fall than I have for a good many years in all the streams in this district."

Concerning the Weight of Smallmouth Bass

TO many of our Pennsylvania fishermen, the weight of our most popular game fishes—namely, smallmouth bass, largemouth bass, wall-eyed pike, trout, brook, brown and rainbow, and pickerel is a subject of considerable interest. How much should a fingerling bass weigh, and proportionally, how about the larger members of the fighting bronzeback species? In line with this thought, we are turning back the calendar to 1895, thirty-two years after the first smallmouth bass were stocked in Pennsylvania waters. The earnest efforts of a fine sportsman, Weightman Stelwagon, who confined his fishing to the famous Upper Delaware in the vicinity of Egypt Mills, Pike County, during that year, made possible this article concerning his highness, the smallmouth bass.

Perhaps a bit of description concerning the Upper Delaware at that time would not be amiss. It may be truthfully said that the ascendancy of the smallmouth from the standpoint of numbers was nearing its peak during the '90's. In the great shallows of this rock-bottom stream, swarms of forage fishes existed; vigorous measures outlawing netting and other destructive activities had been taken to protect fish life. As in other Pennsylvania streams to which it had been introduced, the voracious smallmouth had found an ideal home and its growth in size and number had been amazing. Probably only one fisherman as compared to twenty-five today tested their skill against this hard-fighting game fish.

That the forage factor, the presence of an immense quantity of live food for bass in our waters during that period, was of major importance in compilation of the Stelwagon Bass Chart is attested in his report. He observes concerning the length and weight of bass:

"From the facts gathered, I draw the following conclusion: that a yearling bass will measure six to eight inches and weigh from two to four and a half ounces; that a two-year old will measure from nine to eleven inches and weigh from six to twelve ounces; and that a three-year old will weigh from fourteen ounces to one pound five ounces. It is possible that it is assuming too much in this last weight and that it is an exceptional three-year old bass that will weigh as much as one pound and four ounces. I have no data as to the ages of heavier fish and all figures would be mere guesswork."

Modern fish culture has eliminated, however, much of the guesswork from ascertaining the age of bass. Today it is possible to arrive accurately at the age of even say a four-pounder by studying the waves or growth cycles on a scale from the fish. In northern bass waters, these game fish go into a period of semi-hibernation or dormancy during the winter months, emerging when the water temperatures rise in the spring. Each of these waves, it has been claimed, represents a year in the life of the fish; or



THE UPPER DELAWARE IN THE '90'S

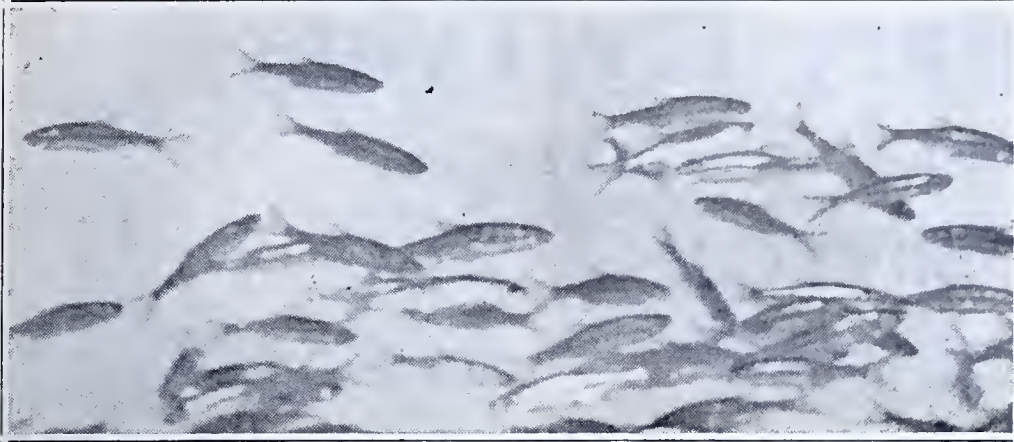
in other words, marks the emergence from each year's hibernation period. Stelwagon made his study from the angle of a practical fisherman and his findings are exceptionally interesting since they cover an early period in the history of the bass in Pennsylvania.

It will be noted in glancing over the chart that the bass caught at various lengths were remarkably uniform from the weight angle. Glancing at one group, that of nine-inch fish, we find that the four taken varied but slightly, from 5½ to 7 ounces. The 10-inch group, most numerous, were also fairly uniform in weight, running from seven to 10 ounces.

It has been possible, in recent years, to observe the growth of thousands of bass held at the hatcheries, and the tendency of certain individuals to develop more rapidly than others is well known. Bass, like other species of game fish, are natural cannibals. Anything alive and moving, whether a minnow, crayfish or another of their own kind will be struck without hesitation. In the instance of a bass that develops faster than its fellows in a hatchery pond, this fish, unless removed, will soon become a confirmed cannibal, deriving even faster growth when nourished on the rich flesh of other bass fingerlings. To overcome this tendency



SMALLMOUTH BASS



BASS FORAGE—SHINERS

to the greatest possible degree, frequent sortings are necessary.

Now, let us turn again to Stelwagon's report. His observations follow:

"It may not be generally known that young bass can readily be distinguished from all other small fish by a black mark at the tip of the tail. This is so well defined that persons unaware of this distinguishing feature, upon seeing a small bass in the water, will at once call attention to the mark. It aids greatly in investigating the habits of these fish.

"Until about the middle of July or the first of August bass eight inches long or under can be seen singly and in small schools in the still and shallow water close to the shores. Until this time but few are caught, bass being fished for in deep or rapid water—the first of this size hooked in 1895 being on the sixteenth of July; in 1892, August 4th; 1893, July 24th; 1894, July 7th. After the first of August they are seldom seen along the shore having gone to deeper water as shown by the fact that they are then caught while fishing for larger fish; and they become a great nuisance. I have also caught a few of this size in June and early in July when fishing for bait, but have merely estimated their length.

"Before they go to deep water in late July a close observer can see still smaller bass close to the banks—bass measuring two inches and less hiding behind stones and in the grass. These are of the May and June spawning. They are a sturdy looking little fish and are as great a nuisance in August when fishing for bait as their older brothers are in the same month when fishing for larger fish. I have frequently been forced to move when fishing for bait by these chubby little fellows. The black spot on the tail is very much in evidence. In late August and early September some of these have attained a length of fully three inches. It is a well known fact that bass go to deeper water as the season advances and the water becomes cold, and but few fish smaller than a pound are then caught. In view of this I should say that the fish of the spring hatch are in winter quarters by the middle of October and have ceased to feed and grow. They are now three or four inches in length. They reappear in April to become the six to eight-inch fish which are seen in the shoal water in June and July and which are such a nuisance to anglers in August.

"As I have followed the growth of the bass from two inches and under to six to

eight inches, at this point the tables become of service. It will be noted that there are more than double the number recorded of the three lengths, six and one-half to seven and one-half inches, than in the four lengths, five and one-half—the smallest caught—six, eight and eight and one-half inches. There is another sudden increase in the number caught at ten, ten and one-half and eleven inches. These are, of course, a year older than the first group. My records show in weights, not in lengths—that I catch a larger proportion (as compared with the seven and one-half and eight-inch fish,) of the six and one-half and seven inch bass early in August than I do early in September, and that I catch more proportionally of the nine and one-half or ten inch fish early in the season than I do late. This simply shows the growth in the time mentioned. It is possible that a few of the yearlings attain a length of eight or nine inches at the end of September and that some of the two-year-olds are of the same length early in June.

"My attention was first called to the comparatively slow growth of bass in 1892. In August of that year your president, the Hon. Henry C. Ford, with whom I have spent many seasons in Pike county, and myself were greatly annoyed by the large number of bass weighing from two to four and one-half ounces that we caught—six and one-half to eight-inch fish. In talking the matter over it was recalled that during the

The Stelwagon Bass Chart

Length	Weight of Each Fish (Ounces)
5½ inches	.. 1¼
6 inches	.. 1¾
6½ inches	.. 2, 2, 2½, 2, 2, 2½, 2, 2, 2½
7 inches	.. 3, 3, 3, 3, 2½, 3, 3, 3½, 2, 2, 2½
7½ inches	.. 4, 3½, 3½, 4, 4, 3½, 3, 4, 3½, 4, 3½
8 inches	.. 4, 4½, 4, 4½, 5
8½ inches	.. 5, 5, 5½, 5, 5, 5½, 5, 6
9 inches	.. 6, 6, 5½, 7
9½ inches	.. 7, 8, 7, 7, 8, 9, 7, 7,
10 inches	.. 10, 9, 7, 7, 8, 8, 8, 8, 7, 7, 8, 8, 9, 8, 8, 8, 10, 9, 9, 8, 10, 9, 8, 8, 9
10½ inches	.. 11, 10, 9, 10, 10, 9, 9, 11, 11, 10, 11, 9
11 inches	.. 11, 11, 11, 10, 11, 12, 10, 12, 11, 12, 11, 11, 12
11½ inches	.. 12, 12, 12, 13, 13, 12

preceding summer we had remarked the amazing number of tiny bass in the river. They were in decidedly larger numbers than Mr. Ford had ever seen and he had been fishing the Upper Delaware since 1878. At almost any point along the shore five to ten of the black tailed fish would be in view at one time. The small bass we were catching was the result. This conclusion was as disappointing as it was unavoidable, we having had the impression that yearling bass were half-pound fish.

"A pair of scales almost invariably reduces the weight of fish and I know it to be a fact that four out of five fishermen along the Upper Delaware call the ten and eleven-inch bass—pound fish. There was some difference of opinion between us as to the size these yearlings would be in 1893. At all events we found there were unusual numbers of seven to twelve ounce fish in the river. I caught more of this weight—141—

(Turn to page 9)



YEARLING BASS

Elementary Fly Tying

By CHAS. M. WETZEL

DRY FLIES

ALL of us have our favorite flies—those old reliable ones that we religiously tie on, year after year. We developed an extraordinary fondness for these—not because they are the best in the world, but because of some pleasant memory associated with them in the past. Probably the reason we take most of our trout on these old “stand-bys” is because of our confidence in them; and with the confidence inspired by the knowledge that the fly is good, we very likely use a little more care in its presentation, trying to emulate the manner in which we scored such outstanding success before.

Among the commercial tied flies my favorites are the Royal Coachman and the Bi-Visibles. Since the advent of the fan wings—the Royal Coachman tied in this style has been greatly improved, especially for taking brown trout. This fly seems to be a universal favorite and has come down through the ages, battle scarred and victorious, and still adding to its host of admirers. It was first tied in England, and an excerpt appears below from David Foster's book, “The Scientific Angler,” which is no doubt correct and probably the most reliable history obtainable of the originator of this fly. In his direction for fly casting, he remarks:

“A thorough command of the rod and line, is as essential and important as the wielding of the whip in the case of the tandem, or four-in-hand drive. We are reminded of this analogy, that the most skilful caster we ever knew, wielded the whip. We refer to the famous Royal Coachman, Tom Bosworth. Old Tom had, in the early part of his life, driven three successive British sovereigns, namely the fourth George, the fourth William and finally for a lengthened period, Her Majesty, Queen Victoria.

“As a successful fisherman, Old Tom, when known to the writer, was unsurpassed. He would often fish in the wake of several rodsters, whose energy would exceed their skill, and would extract, not infrequently, three times over the weight of fish by skilful and careful casting over the awkward, and most unlikely spots, which the majority of anglers would never dream of trying.

“A favorite freak of his, with the whip, was to take the pipe from the teeth of a passing pedestrian by a carefully calculated whirl of the whip, and his aptitude was as remarkably exemplified for a limited distance in his use of the rod. Bosworth originated the Coachman fly, so much appreciated for night fishing.”

We will now tie this fly. Place a No. 12 or No. 14 hook in the vise. The hook should be light, with a turned down eye, and I prefer the type known as the “model perfect,” for all dry flies. Wax a piece of No. 000 tying silk, and lay it on the shank, just behind the eye. Fasten in place by winding over its own end and clip hackle pliers—

which are illustrated in fig. 2—to silk, letting it hang.

From two matched white duck wing feathers—rights and lefts—cut out a section, about one-fourth an inch wide from each. See fig. 1. Place these sections back to back, with convex faces together—straddling hook, as shown in fig. 3. Lash feathers in place, with about three turns of the winding silk, letting butt ends hang down as shown. Shellac the hook and when this has partially dried, grasp downward projecting butt with right hand, with left hand grasp tip of wing, moving both clockwise, until wings are in a vertical position. The butt of wings will now be sloping back towards point of hook and should be securely lashed in place. Clip off the excess butt of wings and with tying silk continue out to bend of hook where the tail and body material must be fastened on. For the tail, use a few fibres from a golden pheasant feather and for the body material—red floss silk and peacock herl is required.

Herl is the name given to the long fibres or filaments of peacock's tail feather. Lash tail, red floss silk and herl securely in place and continue with tying silk back to eye of hook. Lay the red floss silk back and between the wings. The fly will now present the appearance of fig. 4. Start winding the herl around the hook and over the red floss until a nice ball is formed. Now take the floss silk and wind over the end of herl, binding it down; and continue winding with the floss silk, until a smooth band is formed in the center. Bring the tying silk front and fasten end of floss silk with a few turns. Clip off excess end of floss silk.

With tying silk fasten another peacock herl in place, and continue with tying silk back to eye of hook, letting it hang, with hackle pliers attached. Strip the down from a brown hackle; turn back the fibres, so they stand out at right angles to quill and place the butt of hackles between the wings, and with tip extending to right. Lash hackle in place with a few turns letting it extend out as shown in Fig. 5.

Wind this second herl on, and fasten end in place, with tying silk, just back of wings. Now grasp tip of hackle in the right hand, and wind two turns around the hook, just back of eye; then once between the wings, around the hook and front again. Wind a few more turns in front of wings, then fasten with three half hitches. I use a whip finish, but as these knots are rather difficult to explain we will use the half hitches. Sometimes I wind the hackle entirely in front of wing and finish on the back. This will cause the fibres to slope towards the front but since I generally clip out an inverted V, just under the body on all my dry flies, this labor seems unnecessary.

Winding the hackle back between the

wings, spreads the feathers and gives the fly a better balance; and by clipping out the wedge in the hackles, the fly will rest more natural on the surface; its body will not be concealed and it will usually alight, right side up.

With the needle pick out the fibres of hackle which were doubled under. Put a drop of celluloid varnish on the head—trim off the excess ends and the fly is complete.

While writing this, I have been actually engaged in performing the various tying operations; and as a small token of appreciation, for the very nice things the editor of the ANGLER has said about me in the September issue—I will give him this fly—hoping that when he uses it the east wind will not blow, and that his success with it may prove phenomenal.

Fan Wings

These flies are difficult to tie and regardless of how well they are tied, the wings in time will lose their original erect position. Extreme care should be used in selecting the feathers so that they will be exact rights and lefts and for proper balance the wings must be applied centrally over the hook. The feathers are short and curled and I prefer those from a mallard duck.

Strip the down from the feathers and clip off a few fibres on each side of the quill as shown in fig. 7. Varnish the hook lightly and follow the same procedure in attaching the wings as in the dry fly previously covered. Clipping off these fibres gives the wings a firm foundation and prevents twisting. After butt ends have been lashed down and clipped off (see Fig. 8) continue with winding silk to bend of hook, when the tail and body material should be fastened. No further difficulty should now be experienced in completing the fly.

Quill Flies

Quill flies such as the ginger quill, red quill, etc. derive their names from the color of hackles. The so-called blue quill Gordon, was named after Theodore Gordon, a famous fly fisherman of New York.

Quills for making the bodies are obtainable from two sources: first, by making an incision, with a knife, in a quill of a feather and stripping off this section; and second from the eye of a peacock feather. Peacock quills are generally used for they possess a lustre and sheen that is particularly pleasing. Near the tip of a peacock's tail feather, this eye is found—a vivid blue circular spot, standing out prominently against the feather.

Strip off a fibre or herl from the eye and remove the flue or short tinsel like hair. The easiest way I have yet found to remove the flue is to grasp the tip of the herl in the left hand, and with an ordinary needle in the right hand, press down on the herl over some smooth surface. Pull the

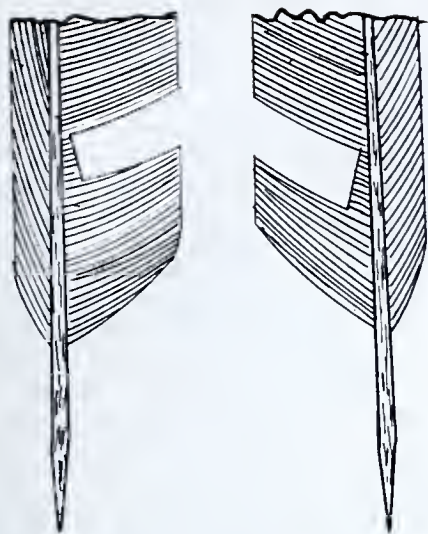


Fig. 1.



Fig. 2.

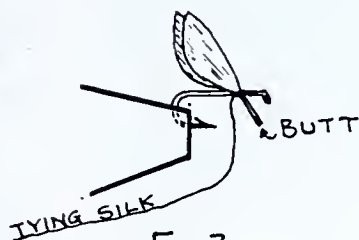


Fig. 3.

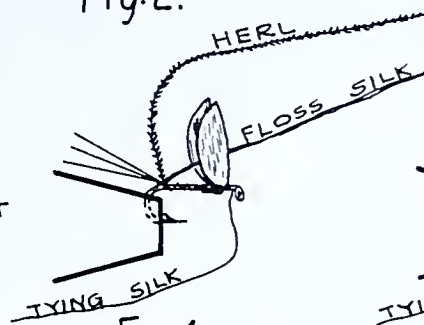


Fig. 4.

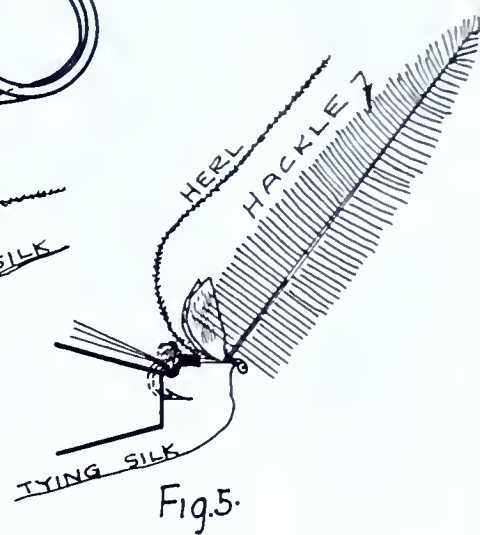


Fig. 5.

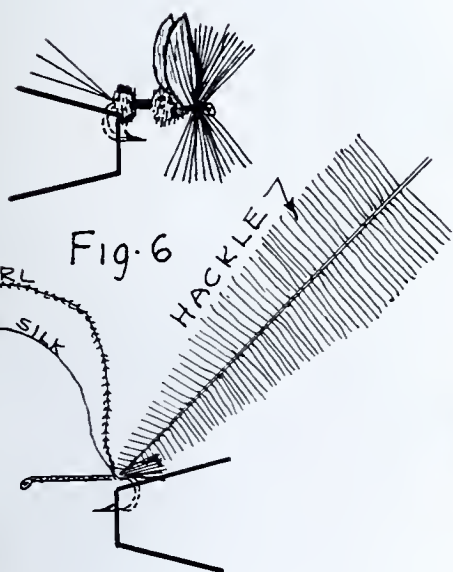


Fig. 6.

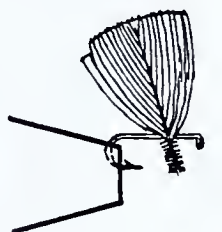


Fig. 7.

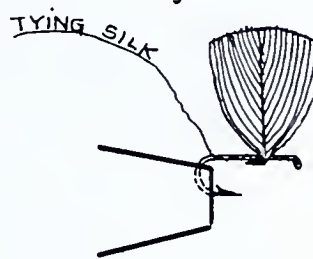


Fig. 8.



Fig. 9.

Fig. 10.

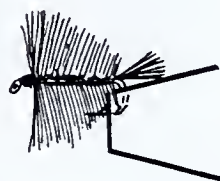


Fig. 11.

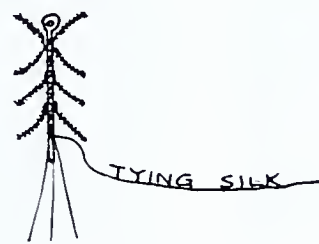


Fig. 12.



Fig. 13.

SKETCHES BY THE AUTHOR

herl with the left hand, and one stroke will usually suffice to remove all the flue. A smooth section of quill about one and a half inches long is now ready for making the body of the fly.

Spent Wings

These flies are supposed to represent the natural insect as it drops exhausted and inert upon the water after laying its eggs. They are usually in the spinner stage, and the wing hackle should be stiff and glossy in appearance, in keeping with the natural insect. I prefer them clipped, as shown in the sketch, in preference to using the tips, as the wind resistance is less and they retain their position longer.

With the scissors clip off the fibres leaving a fringe similar to those in the fan wings.

Lay the hackles, one above the other, two on each side and with glossy side underneath. Put a drop of varnish on the fringed ends and with criss-cross lashing secure in place. Continue with tying silk out to bend of hook, where tail and body material should be attached.

Bi-Visibles

The angling fraternity is indebted to that veteran angler of the Neversink, Mr. E. R. Hewitt, for originating the bi-visible fly. It is a hackle, Palmer type, with two tone color effect, having a wisp of white hackle wound on the head to aid visibility. Aside from its remarkable fish-taking propensities, this color scheme alone is sufficient to commend it to everyone; for there is nothing so straining on the eyes as trying to follow the gyra-

tions of a dark floating fly all day long, especially when the sun now and then beats down on the water with a dazzling glare. This buoyant fly is especially good for fishing swift water, and has met with enthusiastic response from all who have used it. Let's hope that its designer may spring another pleasant surprise on us, by creating another equally as good. With apologies to its originator, I tie the fly as follows:

Place the hook in the vise. Lay the waxed tying silk on the shank, just back of eye, winding over its own end, and continue out to bend of hook letting silk hang with hackle pliers attached. This fly will be a brown bi-visible, so we will clip off a number of fibres from a brown hackle, and lash this tuft in place allowing it to project out be-

yond the body about one-quarter of an inch. Two hackles are usually required, one having shorter fibre than the other. Select the larger hackle so that the fibres are equal to the length of hook. Fasten tip of brown hackle and herl from an ostrich feather (dyed brown) at bend of hook. (See Fig. 10). Many tiers wind the hackle direct over the bare hook but I prefer the herl, as it gives a body to the fly, although probably not visible to the trout. Strip the hackle so that the fibres stand out normal to the quill and take winding silk back to eye of hook. Wind on ostrich herl and fasten back of eye with three half hitches.

Fasten pliers to tip of hackle and with first finger of right hand in ring of pliers—wind in the hackle, using the needle in the left hand to pick out the fibres which become doubled under. When this hackle has been wound on, hold down the butt with a few turns, lay the tip of the larger hackle over it and fasten both with three half hitches. Clip off surplus butt of small hackle. With pliers now attached to tip of larger hackle—wind this one, fastening back of eye with three half hitches. Now, at same place, fasten on a white hackle. Take three turns around the hook and fasten with three half hitches. Clip off surplus ends, touch up the head and the fly is finished. Fig. 11 shows the finished fly.

Drake or May Fly Nymph

I will not say much about these nymphs, as my success with them has been indifferent. Usually, while fishing with them, and in response to a query of "What luck?" I am forced to confess "Nothing but experience." I have tied a variety of them and have given a number to my friends, who seem to think that the one illustrated in Fig. 13 is the best.

The legs, as shown in Fig. 12, are small pieces of peacock herl and should be secured in place before the body of dubbing is put on. At the bend of hook fasten three fibres of a wood-duck feather for the tail. With tying silk—well-waxed—clip off the fur from the belly of a muskrat—the short silvery looking fur—then felt this fur on the silk, twisting same around it as much as possible. Now wind this for the body, leaving the legs stick out as shown in Fig. 13, which illustrates the completed nymph.

General

For dyeing the various feathers, etc., diamond dyes give good results. Celluloid varnish should be thin and may be made by dissolving a few pieces of well-cleaned camera film in equal parts of acetone and amyl acetate. When it thickens, thin with acetone. When tying the half hitches I generally slip the needle in the loop, holding it taut and then pulling it tight. This dubbing needle is an ordinary darning needle, driven tight in a wood handle. For procuring the various hackle pliers, feathers, etc., consult the advertising pages of any sporting magazine for firms who specialize in fly tying equipment.

From the various flies that we have now tied, no trouble should be experienced in tying the green drake which I described in the August issue, and for the benefit of those who have mislaid their copy, I will here repeat its dressing. The body is a pale, straw color floss silk with silver tinsel ribbing, the

extremities are a peacock herl, wound in a small ball; tail is three fibres of a wood duck feather; brown hackle and the wings are the short curled feathers of a mallard duck, dyed pale green,—the fly being tied fan wing style.

The Trout in the Pool at the Devil's Elbow

Whenever I tie the fly described above, my thoughts swing back to an evening when I was fishing a certain stream in our state, the name of which I shall not mention. For there lurks in one of its pools, an old cannibal brown trout which I would like to catch; and against which I hold a special and personal grudge. I have never told anyone about it—had forgotten even to mention it to my closest fishing friend—for all anglers are more or less prone to such memory lapses when a big trout is at stake.

Time after time, I had fished this stream, sometimes with fair success—other times indifferent, but always the pool at the Devil's Elbow was intriguing and conspicuous by its absence of swirls from rising fish. Never had I taken a trout from its depths—nor to my knowledge had anyone else.

The pool is long, deep and log choked; and to reach it unobserved, one must crawl through a seemingly insuperable mass of green briar and rhododendron. The longer I fished this pool the firmer grew my convictions that it was the lair of a giant trout who held tyrannical sway there, repelling or eating all others.

Then came a day of bright sunshine, when the stream ran low and clear and the log spanning the pool, rested high and dry above the surface. This was the opportunity I had been waiting for to confirm my suspicions.

From the mountain which rose up steeply from the water's edge I carefully searched the pool. Not a fish was visible and disappointedly I crossed to the other side. At the lower end of the pool, where the water, mirror-like, reflected the rhododendron clad banks, stood the rotting stub of a large pine; and among its gnarled roots, which lay bare and exposed, where the water had undermined the bank, I first saw the trout.

I will not dwell on his size—for all fishermen seem gifted with elastic imaginations—but I will say that it was a real fish. Fly after fly I floated over his lair, all of which the old lad ignored with a studied indifference which made me all the more determined to catch him.

Then elapsed a period of two years, during which time the trout as usual continued his abode in the pool. Twice I had seen him in this interval, but never once could I lure him to the fly. At last came a memorable day when we met on an equal footing.

I had not been out fishing much that year and having only the day, I fished the stream rather hurriedly hoping to reach the pool at the Devil's Elbow when the evening hatch of flies was over the water.

Cautiously I crept through the rhododendron to the pool's edge, and this position, once attained, offered a sweeping view over the pool and to the bend above, where, since my last visit the year before, a colony of beavers had built a dam. Time had made no changes in the pool at the Devil's Elbow, its water still flowed lazily and now glowed red to the setting sun. Soon the flies would appear.

There was no hurry now, for a kind friend had given me the key to his hunting camp where I intended passing the night; and so in this leafy retreat I settled down to await the evening rise. From the mountain-side, a pheasant drummed noisily, and over all hung the hush of a perfect day in the woods. For a long time I sat there. Then a few drakes, resplendent in their sparkling new spinner coats started gracefully rising and falling over the water. They were the scattered remnants of the previous day's hatch which I had missed.

Upstream at the beaver dam, a few small trout were joyously leaping among the freshly peeled aspen logs which floated on the surface, and whose conoidal cut ends still showed plainly against the dark water in the gathering gloom. It was tempting to sit there, idly watching these rising fish, but the memories of the old lad held me to the spot. Then just as I was preparing to move up to the beaver dam, a sudden swirl caught my eye.

Close at hand near the head of the pool just when the water settled down after swirling around a huge gray rock—a fish was rising—rising persistently—sucking down the flies with an audible smack which was good to see. I could not be mistaken.

"It's the old lad!" I thought exultantly. "He means business, too,"

In a fever of anticipation, I cast the artificial drake above the rock! It was a good floater and as it came down stream, I began stripping in line.

Then just as I was preparing to lift the fly off the water a dark-looming shape swiftly appeared in its wake—and the drake disappeared in a ripple of small concentric rings!

Keyed up to a high pitch over the sudden sight of that shadowy form, I struck hard—too hard—and the line flew back in the rhododendron and hung there in limp sickening coils. The drake was gone and also my trout!

It was poignant disappointment and darkness had long spread its cloak over the land before I recovered. Back in the woods the whip-poor-wills set up their unearthly din and high above the beaver dam, in the crook of the "elbow," the moon appeared, casting its ghostly radiance over the pool at the Devil's Elbow, which slumbered on silent and opaque, again unruffled by rising fish.

And this is the story of the trout in the pool at the Devil's Elbow. I have not been back since; yet I have a feeling that in its depths he still sulks, domineering and defiant, every ready to rush forth and give savage battle to any trout who might dare invade his domain.

CORRECTION

In the article on how to distinguish rock bass from sunfish which appeared in the November ANGLER, it was erroneously stated, through omitting a line, that rock bass could be legally taken at any time of the year, Sundays excepted. Rock bass, however, are classed as game fish, and the season for them runs from July 1st to November 30th, both dates inclusive. It is hoped that this correction will clear up any confusion on the taking of this species of fish. Sunfish may be taken the year round, Sundays excepted.

Caught This One Twice

Charles L. Wetzel of Beavertown shares the enthusiasm of his son, Charles M. (you've been reading his articles in the ANGLER and we'll say right here they're corkers) for fishing. One of the best fishing incidents we've heard this season was related by Charlie's dad recently, and it happened on Middle Creek in Snyder County.

Mr. Wetzel was fishing for suckers in October and hooked a fish that broke his line. One week later, accompanied by a friend, the angling veteran returned to the same place. As he pulled in the line for another cast, something beneath the surface came to life in no uncertain manner. After a lively tussle, Mr. Wetzel succeeded in landing a 19-inch pickerel unusually heavy in girth. His line had caught on the one that was lost, and the fish on the broken line had obligingly stayed put until caught a second time.

Any doubt that it was the self-same fish and broken line was removed when Mr. Wetzel examined the sinker which was a home-made product and therefor immediately recognized.

ANOTHER RECORD BASS

A recent report on big bass caught during 1934, received by Warden Joseph Mellon, Philadelphia, from William Quinney, 133 East Green Street, West Hazleton, indicated that another record for largemouth bass in Pennsylvania has been set. Quinney caught his big bass in Stillwater Lake on October 5. He writes:

"The dimensions are: length—23 inches; girth, 18 inches; weight 9½ pounds. It was 4¾ inches through. I am having it mounted and I am not sure when it will be finished. It will be on display at Tom Merriana's, the sporting goods store on Broad Street in Hazleton."

WATER LEVELS UP IN TIOGA STREAMS

Heavy rainfall last autumn proved one of the greatest boons to trout in Tioga county's mountain streams during recent years, according to Warden Horace P. Boyden of Wellsboro. On a number of these streams, he writes, stream improvement has bettered conditions under which trout must live.

"During the hunting season," he reports. "I saw a good number of large brook trout and brown trout on spawning beds. Many of these beds were located in stream headwaters near large springs."

High water was general in the mountain country and many of the mountain springs are full and running good streams of low temperature water.

SPEAKING OF PERCH

Raising yellow perch is an important feature in the Fish Commission's hatchery program. Through extensive breeding for size, a strain of perch has been evolved at Pleasant Mount hatchery in Wayne county that has become justly famous not only for greater size but for fine coloration. Reports received during the past year indicate that many unusually fine perch were taken. But, at that, perch fishermen have an unusual



THIS SNAPPING TURTLE MUST MEAN BUSINESS

record, established several years ago, to top if they are to best the mark set by Dr. E. K. Tingley, Marietta, and Clayt Reed of Ambler.

Fishing in Page's Pond near New Milford, Susquehanna county, Dr. Tingley, who is noted for the splendid strain of field trial pointers he has developed, and his companion caught two unusually large perch. Dr. Tingley's fish measured 20 inches in length and tipped the scales at 2¾ pounds, while Reed landed a perch measuring 19¼ inches and weighing 2¼ pounds.

CONCERNING WEIGHT OF BASS

(Continued from page 5)

than of all other sizes. We now began to speak of them as 'Regulars.' In 1894 they showed themselves again and at this time they weighed fourteen ounces to one pound and five ounces. I caught double as many of these weights in that season than I ever did before in any one summer—fifty-one in all. The first question between us upon meeting after a day's fishing was as to the number of 'regulars.' It was a very desirable size to catch indeed. In 1895 I did not go to Pike county until the tenth of July, and the river was too low for good fishing. However, of the fish caught weighing over a pound, three-fourths of them weighed between one pound six ounces and one pound ten ounces."

GOOD BASS FISHING IN NESHAMINY CREEK

Anglers in southeastern Pennsylvania have been making some nice catches of small-mouth bass in Neshaminy Creek near Doylestown this autumn, according to Warden J. H. Mellon of Philadelphia. A 19½-inch small-mouth was taken by Elias Wismer of Quakertown, while H. W. Eyster of Philadelphia landed one measuring 18 inches.

Fishing in Stillwater Lake, John Kubishin and John Tarpschack of Hazleton had a catch recently of five bass, four pickerel and three yellow perch, all over 15 inches in length, and two large catfish.

1,269,580 FISH AND FROGS STOCKED DURING NOVEMBER

Brook trout, brown trout, sunfish, catfish, frogs, yellow perch, bass, minnows and pickerel featured November stocking of Pennsylvania streams by the Fish Commission. Of the total number of the various species distributed, 207,704 were brook trout from 6 to 12 inches in length; 7,200 fingerling brook trout; 2,830 brown trout, 10 to 13 inches; 429,325 sunfish, 2 to 5 inches; 79,156 catfish, 3 to 9 inches; 184,740 frogs in the embryo stage; 3,700 yellow perch, 4 to 8 inches; 2,880 bass averaging 4 inches; 350,900 minnows, one to 3 inches, and 1,145 pickerel averaging 12 inches in length.

Following were the streams stocked in the various counties:

Armstrong—trout, Cornplanter Run, Patterson Run; catfish, Allegheny River, Raystown Branch of Juniata River, Brush Creek; frogs, Allegheny River; sunfish, Allegheny River.

Beaver—trout, Brady Run.

Bedford—trout, Cove Creek, Bobs Creek, Three Springs Creek, Flintstone Creek, Raystown Branch Juniata River; catfish, Raystown Branch Juniata River, Brush Creek; sunfish, Raystown Branch Juniata River, Brush Creek; frogs, Raystown Branch Juniata River, Brush Creek.

Berks—trout, Northwest Branch Perkiomen Creek; yellow perch, Little Swatara Creek, Conestoga Creek, French Creek, Monocacy Creek; catfish, Little Swatara Creek, Conestoga Creek, French Creek, Monocacy Creek.

Blair—trout, Canoe Creek, Bells Gap Run, Bobs Creek, Big Fill Run, Blairs Gap Run.

Bradford—trout, Scharder Creek; catfish, Rockwell Pond, Cooks Pond, Blakeslee Pond, Moody Pond, Sunfish Pond, Stowell Pond, Beaver Meadow Pond, Barnes Dam on Strong Creek; sunfish, Rockwell Pond, Cooks Pond, Blakeslee Pond, Moody Pond, Sunfish Pond, Stowell Pond, Barnes Dam on Strong Creek;

minnows, Cooks Pond, Sunfish Pond, Beaver Creek, Hunter Run, Hemlock Creek; catfish, Allegheny River; sunfish, Allegheny River; frogs, Allegheny River.

Bucks—catfish, Maple Beach Pond, Silver Lake, Queen Anne Creek.

Butler—trout, Little Connoquenessing Creek, Cornplanter Run, Bear Creek; catfish, Oneido Dam, Thorn Run Dam, Boyertown Dam; sunfish, Oneido Dam, Thorn Run Dam, Boyertown Dam; frogs, Oneido Dam, Thorn Run Dam, Boyertown Dam.

Cambria—trout, Killbuck Run, Big Laurel Run, Mudlick Run, North Branch Blacklick Creek, Beaver Run, Little Conemaugh River, Cedar Run, Blacklick Creek, Bens Creek, South Fork Little Conemaugh River, Rogues Habor Run, Saltlick Run.

Cameron—trout, Hicks Run, Lick Island Run, Wykoff Run.

Carbon—trout, Aquashicola Creek, Buckwa Creek, Stoney Creek, Hunter Creek, Quakake Creek, Pine Creek, Hayes Creek, Big Bear Creek, Lesley Run, Mauch Chunk Creek; catfish, Forth Run, Leslie Run, Bisby Creek; frogs, Leslie Run, Forth Run, Bisby Creek.

Centre—trout, Sinking Creek, Galbraith's Gap Run, Cold Stream, Pine Creek, Penns Creek, Logan Branch.

Chester—trout, White Clay Creek, Birch Run; catfish, Mill Pond, Black Dam on Pine Creek, Delchester Farms Dam on Indian Creek, Delchester Farms Dam on Ridley Creek, French Creek; frogs, Black Dam on Pine Creek, Mill Pond, French Creek; sunfish, Mill Pond, Black Dam on Pine Creek, French Creek; yellow perch, French Creek, Delchester Farms Dam on Ridley Creek, Delchester Farms Dam on Indian Creek, Black Dam on Pine Creek, Mill Pond.

Clarion—trout, Toms Run, Mill Creek, Deer Creek.

Clinton—trout, Hammersley Fork.

Columbia—trout, Roaring Creek, Little Fishing Creek.

Crawford—trout, Middle Branch Sugar Creek, Little Sandy Creek, McLaughlin Run, Little Sugar Creek; catfish, Lake Canadohta Conneaut Lake, Muddy Creek; frogs, Lake Canadohta, Conneaut Lake, Muddy Creek; sunfish, Lake Canadohta, Conneaut Lake, Muddy Creek.

Cumberland—trout, Mountain Creek, Big Spring, Oldtown Run; catfish, Mountain Creek, Conodoguinet Creek, Susquehanna River, Means Run; frogs, Mountain Creek, Conodoguinet Creek, Susquehanna River; sunfish, Mountain Creek, Susquehanna River; yellow perch, Means Run, Conodoguinet Creek.

Dauphin—trout, South Fork Powells Run, Stoney Creek, Clark's Creek.

Etk—trout, Medix Run, East Branch Clarion River, Bear Creek, Crooked Creek, East Branch Hicks Run, Wilson Run, Paige Run, Wolf Lick Run, Mix Run; catfish, Damon Dam; sunfish, Damon Dam; frogs, Damon Dam.

Erie—trout, South Branch French Creek, Beaver Dam, East Branch LeBoeuf Creek; sunfish, Lake LeBoeuf, Edinboro Lake, South Branch French Creek; catfish, Edinboro Lake, South Branch French Creek; frogs, Edinboro Lake, South Branch French Creek.

Fayette—trout, Mill Creek, Little Sandy Creek, Laurel Run, Big Sandy Run, Mill Run, Buck Run, Rubles Run, Dunbar Creek, Meadow Run.

Forest—trout, Coon Creek, Little Coon Creek, Lamentation Run, Bear Creek, Little Hickory Creek, East Hickory Creek, Spring

Creek, Hunter Run, Hemlock Creek; catfish, Allegheny River; sunfish, Allegheny River; frogs, Allegheny River.

Franklin—trout, East Branch Conococheague Creek, East Branch Little Antietam Creek, Trout Run; catfish, Conodoguinet Creek; sunfish, Conodoguinet Creek; frogs, Conodoguinet Creek.

Fulton—trout, Little Aughwick Creek, Oregon Creek, South Brush Creek, Little Brush Creek.

Huntingdon—trout, Tatman Run, Blacklog Creek, Licking Creek.

Indiana—trout, Toms Run, Mardis Run, Little Rellow Creek.

Lackawanna—trout, Gardners Creek, Lehigh River, West Branch Wallenpaupack Creek; catfish, Newton Lake, Crystal Lake, Moosic Lake, Chapman Lake, Deer Lake, Heart Lake; sunfish, Heart Lake, Newton Lake, Crystal Lake, Chapman Lake, Moosic Lake, Deer Lake.

Jefferson—trout, North Fork Red Bank Creek, East Branch Mahoning Creek, Little Mill Creek, Horum Run, Cathers Run, Little Sandy Creek, South Branch of North Fork of Red Bank Creek, Clear Creek.

Juniata—trout, Lost Creek; catfish, Juniata River, Licking Creek, Lost Creek; sunfish, Juniata River, Licking Creek, Lost Creek; frogs, Juniata River, Licking Creek, Lost Creek.

Lancaster—trout, Little Conestoga Creek, Long Run, Swarr Run, Seglog Creek, Middle Creek, Fishing Creek; frogs, Conewingo Creek, Big Chickies Creek; catfish, Mill Creek, Big Chickies, Conewingo Creek; sunfish, Mill Creek; yellow perch, Mill Creek, Big Chickies Creek, Conewingo Creek.

Lawrence—trout, Taylor Run, Big Run, Little Neshannock Creek.

Lehigh—trout, Cedar Creek, Little Lehigh River; catfish, Smoyer Milling Company Dam on Little Lehigh Creek, Maiden Creek, Orm Rod Mine Hole; yellow perch, Smoyer Milling Company Dam on Little Lehigh Creek, Orm Rod Mine Hole, Maiden Creek.

Luzerne—trout, Wright Creek, Wapwall-open Creek, Pine Creek, Little Shickshinny Creek, Arnold Creek, Bowmans Creek, Bolwards Run, Nescopeack Creek; catfish, Cristy Creek, Linesville Creek, Harveys Lake, Ider Pond on Ten Mile Creek, Cranberry Pond, Sugar Notch Dam, Cummings Pond, Lakeside Pond; frogs, Linesville Creek, Crissy Creek; sunfish, Ider Pond on Ten Mile Creek, Cranberry Pond, Sugar Notch Dam, Cummings Pond; minnows, Harveys Lake, Ider Pond on Ten Mile Creek, Cummings Pond, Lakeside Pond.

Lycoming—trout, Larry's Creek, Hogland Run, Grays Run, White Deer Hole Creek, Roaring Branch, Black Hole Creek; catfish, Beaver Lake on Beaver Lake Creek; sunfish, Beaver Lake on Beaver Lake Creek; minnows, Beaver Lake on Beaver Lake Creek.

McKean—trout, West Branch Tunegucht Creek, Two Mile Run, Kinzua Creek, Portage Creek.

Mercer—trout, West Branch Little Neshannock Creek, Wolf Creek, West Branch Wolf Creek, Little Neshannock Creek, Johnson Run, Lackawannock Creek.

Mifflin—trout, Laurel Creek, East Branch Kishacoquillas Creek, Treaster Valley Run.

Monroe—trout, East Branch Tobyhanna Creek, Middle Creek, Dotter Creek, Big Bushkill Creek, Pensyl Creek, Tobyhanna Creek, Aquashicola Creek, Lake Creek,

Cherry Creek, Pohopoco Creek, Pocono Creek, McMichaels Creek, Timber Hill Creek, Buck Hill Creek, Buckwa Creek; catfish, Lake Mineola, Half Moon Pond, Mill Pond, Gregory Ice Pond; sunfish, Lake Mineola, Half Moon Pond, Mill Pond, Gregory Ice Pond; minnows, Lake Mineola, Half Moon Pond, Coleman Pond.

Montgomery—catfish, Perkiomen Creek, Northwest Branch Perkiomen Creek, Gulf Mill; sunfish, Perkiomen Creek, Northwest Branch Perkiomen Creek.

Northampton—trout, Martins Creek, Monocacy Creek, Saucon Creek, Bushkill Creek, Hokendauqua Creek; catfish, Bowers Dam on Bushkill Creek, Paint Mill Dam on Monocacy Creek; sunfish, Bowers Dam on Bushkill Creek, Paint Mill Dam on Monocacy Creek; yellow perch, Paint Mill on Monocacy Creek, Bowers Dam on Bushkill Creek.

Perry—trout, Laurel Run, Shermans Creek, Houstons or Shaffers Run; catfish, Juniata River, Susquehanna River, Shermans Creek; sunfish, Juniata River, Susquehanna River, Shermans Creek; frogs, Juniata River, Susquehanna River, Shermans Creek.

Pike—trout, Shohola Creek, Raymondskill Creek, Dingmans Creek, Indian Ladder Creek, Sawkill Creek, Big Bushkill Creek, Kellam Creek, Middle Bushkill Creek, Twin



BILL ZUCUSKI. TAMAQUA, WITH HIS 8 POUND, 15 OZ., BROWN TROUT. RUNNER UP RECORD BROWNIE FOR 1934

Lakes Creek, Little Bushkill Creek; catfish, Promise Land Pond, Pecks Pond, Lake Wallenpaupack; minnows, Lake Wallenpaupack, Promise Land Pond, Pecks Pond.

Potter—trout, Nine Mile Run, Eleven Mile Creek.

Schuylkill—trout, Little Catawissa Creek, Pine Creek, Mahoning Creek, Beaver Creek, Pine Creek.

Snyder—catfish and sunfish, Penns Creek, Richfield Dam, North Branch Mahantango Creek.

Somerset—trout, Kooser Run, Iser Run, Big Piney Run, Shafer Run, Sandy Run, Drake Run, Negro Glade Run.

Susquehanna—trout, East Branch Lackawanna River, West Branch Lackawanna River, Nine Partners Run, Starrucca Creek, Harding Creek, Tunkhannock Creek; catfish, North Branch Susquehanna River, Stearns Lake, Alford Pond, Idlewild Lake, Wrighter Lake, Hells Half Acre Lake, Big Elk Lake, Arrowhead Lake, Bigsby Pond, Cottrell Lake, Fox Pond; sunfish, North Branch Susquehanna River, Stearns Lake; minnows, North Branch Susquehanna River, Stearns Lake, Alford Pond, Idlewild Lake, Wrighter Lake, Hells Half Acre Lake, Big Elk Lake, Arrowhead Lake, Bigsby Pond, Cottrell Lake, Fox Pond; pickerel, Wrighter Lake, Hells Half Acre Lake, Big Elk Lake, Cottrell Lake, Fox Pond.

Sullivan—trout, East Branch Fishing Creek, Muncy Creek, Mill Creek, Rocky Run, Sullivan Branch, Lopez Creek.

Tioga—trout, Kettle Creek, Four Mile Run, Phoenix Run, Cedar Run, Mill Creek, Big Run, Norris Brook, Tioga River.

Union—trout, Sheesley Run, Sand Spring Run.

Venango—trout, East Branch Sugar Creek, South Branch Sandy Creek, Upper Two Mile Run, Horse Creek, East Sandy Creek, Panther Run, Little Sandy Creek, Hemlock Creek.

Warren—trout, Fahnsworth Creek, East Hickory Creek, Ackley Run, East Branch Caldwell Creek, Pine Creek; catfish, Conewango Creek; frogs, Conewango Creek; sunfish, Conewango Creek.

Wayne—trout, Johnson Creek, Middle Creek, South Branch Calkins Creek, North Branch Calkins Creek, West Branch Lackawanna River, Little Equinunk Creek, Equinunk Creek, Shad Pond Creek, Calkins Creek, Crooked Creek, Babbittville Creek, Big Branch Dyberry Creek, Lehigh River; catfish, White Oak Pond, Goose Pond, Justin Pond, Cline Pond, Little Union Lake, Long Pond, Adams Lake, Rose Lake, Brookings Pond, Bigelow Lake, Lower Woods Lake, Cadjaw Pond, Delaware River, Howell Pond, Crockenburg Pond, Freethy Pond, Lake Ladore, Keens Pond, Searles Pond on Big Branch Dyberry Creek, Long Pond (Preston Twp.) Spruce Lake, Long Pond (Paupack Twp.); sunfish, White Oak Pond, Rose Lake, Lake Ladore, Kenns Pond, Long Pond (Preston Twp.), Spruce Lake, Long Pond (Paupack Twp.), Little Union Lake, Brookings Pond, Bigelow Lake, Cadjaw Pond, Howell Pond, Long Pond, (Clinton Twp.); minnows, White Oak Pond, Goose Pond, Justin Pond, Cline Pond, Little Union Lake, Delaware River, Long Pond (Clinton Twp.), Adams Lake, Rose Lake, Brookings Pond, Bigelow Lake, White Oak Pond, Lower Woods Lake, Cadjaw Pond, Howell Pond, Crockenburg Pond, Lake Ladore, Kenns Pond, Long Pond (Preston Twp.), Spruce Lake, Long Pond (Paupack

Twp.); pickerel, White Oak Pond, Brookings Pond, Bigelow Lake, Howell Pond, Long Pond (Paupack Twp.).

Westmoreland—trout, Loyallhanna Creek, Furnace Run, South Fork Mill Creek, Shannon Run, Indian Creek, Middle Fork Mill Creek, Camp Run, Furnace Run, Roaring Run.

Wyoming—trout, Meshoppen Creek, Beaver Run, North Branch Mehoopany Creek, Mehoopany Creek; catfish, sunfish and minnows, North Branch Susquehanna River.

York—bass, Susquehanna River; trout, Orson Run, Furnace Run, Toms Run; catfish, Silver Lake on Bennett Run, North Branch Bermudian Creek; minnows, Susquehanna River; sunfish, North Branch Bermudian Creek, Silver Lake on Bennett Run; yellow perch, Silver Lake on Bennett Run, North Branch Bermudian Creek.

FISHERMAN'S MEASURE

Many schemes have been used to carry a measure in the fishing equipment, where it will not be lost and will always be convenient. Most of these have proven unsatisfactory, according to Charles H. Boyd of Harrisburg.

"The most satisfactory way, to me, is to put the measure on the rod," he writes.

"The method of application is this: rub the varnish on the butt joint of the rod at places marked off, as 0-6-9-12, etc., with crocus cloth or fine ink eraser, being careful not to go through to the bamboo.

"Then mark figures with Higgins' Waterproof India Ink and a ball pointed pen, let ink dry and clean surface with dry bread crumbs or art gum.

"Apply spar varnish with the fingers, let this dry hard and rub down with dental pumice and linseed oil to an egg shell gloss. Then give whole rod a light, rubbed, coat of simonize.

"This will take about ten minutes per rod neglecting time for drying of varnish and will last indefinitely. The convenience on the stream will be well worth the time."

"And an ingenious Spaniard says, that rivers and the inhabitants of the watery element were made for wise men to contemplate, and fools to pass by without consideration,.....for you may note, that the waters are Nature's storehouse, in which she locks up her wonders."—Izaak Walton.



Seth Says

I reckon as how we're a-goin' ter do some right good sucker fishin' hercabouts this winter. Jest a few days ago Jerry Tims an' me fished down by the covered

bridge an' by gorry, Jerry ketched him a sucker that weighed three pounds. We got a right smart mess o' fish an' I'm sayin' they was mighty tasty fer the folks.

Well, sir, as Jerry an' me was fishin' we starts a-talkin' about how much better the sucker fishin' has got these past ten years. Time was, Jerry sez, when the sucker run jest didn't git up ter our parts o' the crick like it does nowdays. Thinkin' back, it ain't much wonder. Jest about every raffle hed hoop nets in it, an' more'n oncet, when the run was on, a feller'd ketch a net jammed full in a night, An' nettin' wasn't no worse then the giggin'. The boys an' fellers from other places used ter come at night an' with pine flairs gig a bushel basket full o' fish. An' suckers was most o' what they got, for they was sluggish an' fair easy ter hit with the gig. An' boy, them fishing' parties they hed with seins in them days sure did cut inter the sucker schools, I'm sayin'.

Jerry an' me figgers, ter our way o' thinkin', thet we're heaps better off now thet the gig, net an' sein ain't used no more. Now, every man hes a even chance ter go out, fish fair with pole an' line, an' bring in a mess o' fish. An' I'm tellin' ye, most o' the boys in this neck o' the woods feels likewise. Our fishin's gettin' better an' that's the proof in the puddin'.

TONS OF STONE USED IN IMPROVEMENT PROJECT

Warden Link Lender of Bellwood reports that the Williamsburg, Blair county, sportsmen, have, in addition to deflectors, built four Hewitt type dams in their stream improvement campaign on Big Piney Creek. In one day they hauled 40 truck loads of stone to build dams and deflectors. Two of the nicest brown trout from Big Piney this year were taken by Charles Colbert and Ted Appleman of Williamsburg. Colbert's catch measured 19½ inches and that of Appleman 18 inches.

BOARD OF FISH COMMISSIONERS HARRISBURG, PA.

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HERE ^A_ND THERE IN ANGLERDOM



Late October fishing for bass on the Allegheny River was exceptional, according to J. Albert Johnson, warden at Bradford. In a day's fishing, Harold and Jack McCutcheon, Bradford, landed 19 fine bass. A number of the fish were 17 inches in length.

Big Bend eddy on the Allegheny, according to Warden R. C. Bailey of Youngsville, was one of the most popular fishing places on the river. Anglers who fished there estimated that an average of 200 fish were taken there daily. Early in the month, tadpoles ranked as favorite bait while later minnows were most popular. Some good catches were also made in evening fishing on plugs. Bailey reports one bass taken that measured 22 inches in length and weighed just under five pounds. The fisherman who saw the catch had not, however, learned the name of the lucky angler.



GEORGE CRAIG, SUBRAI MARY AND BILL WILSKY WITH CATCH OF PIKE, ROCK BASS AND YELLOW PERCH AT LAKE WALLENPAUPACK

Fishing partners are Mr. and Mrs. M. W. Rader, of Clarion. Trying their luck at Big Bend eddy on the Allegheny during July, Bailey writes, Mr. Rader hooked a 32-inch Muskellunge and succeeded after a hard tussle in bringing it to shore. But just when he thought the muskie subdued, the trace holding the plug broke. Mrs. Rader saved the day, or rather the catch, by jumping into the water and grasping the fish. In finally landing the fish, she received a severe gash from one of its fangs on a finger.

Perhaps two of the most enthusiastic women anglers in the State are Mrs. N. P. Wheeler of Endeavor, and Mrs. J. A. Anderson of East Hickory. Both are capable handlers of a specially built flat bottom boat. Mrs. Wheeler keeps a record of all fish caught, including date of catch, number of fish, where taken and whether returned to the water or crealed. During 1934, her

Watersnake Incident— "In Two Parts"

When a watersnake along the Conodoguinet, famous bass stream in Cumberland County, takes a notion to make a get-away in some hole along the creek, according to George James, warden at Carlisle, it doesn't fool. And to back up his contention, George offers as evidence an experience he had one day along the Conodoguinet. At the time, he was patrolling the stream and observed a large watersnake swimming past him, apparently headed for a fissure in an abutment of an old stone bridge.

Anyway, as matters turned out, George and the snake arrived at the hole almost simultaneously, the snake just far enough in advance to have crowded part of its body into the hole. Not hesitating an instant, though grabbed the snake by the tail, and as he has considerable weight to throw into a frolic of this kind, a real tug-of-war resulted.

Believe it or not, that snake was so determined to stay in the hole and George was so set on pulling it out, that the result was a watersnake broken in half.

record of bass caught in the Allegheny totaled 109 legal size bass, many of which were returned to the stream after being weighed and measured. Mrs. Anderson, when interviewed by Warden R. C. Bailey, had caught 113 legal size bass, and also returned many of them to the water. Her largest bass, 16½ inches in length, weighed one pound, 12 ounces.

T. D. Repman, of Oil City, caught one of the largest wall-eyed pike to be taken from the Allegheny in 1934. His catch measured 28 inches and weighed 8 pounds. It was made near Alcorn Island and a plug was the lure used. Harry Lytle, also of Oil City, caught a six-pound pike at Panther Run rifles. Lure used—a live shiner.

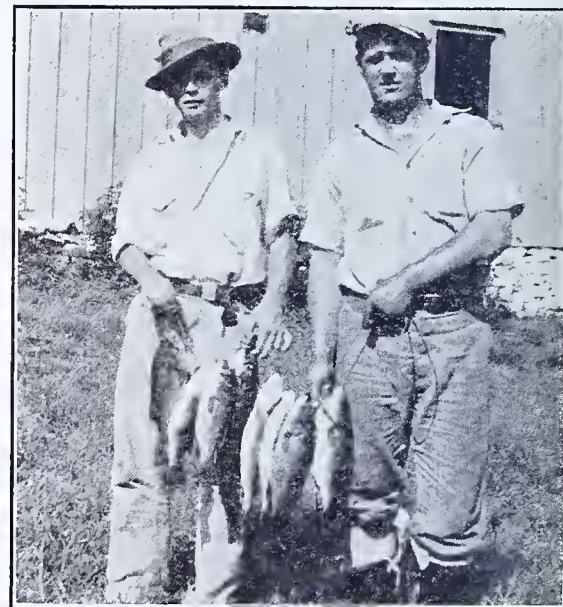
Lake Como, in Wayne County, provided good fishing in October, according to Warden L. E. Noll, of Pleasant Mount. Joe Olean, of Carbondale, made a mixed catch consisting of seven catfish from 10 to 12 inches in length and three pickerel, 19 to 21 inches. William Strunsky caught 13 pickerel ranging in length from 16 to 22 inches.

Trying his luck with a crawfish in the

North Branch in late September. Geno Gavazzi, of Wyoming, caught an exceptionally fine smallmouth bass. It measured 21 inches in length and weighed 4 pounds, according to Warden Russ Womelsdorf.

Stillwater Lake, in Monroe County, yielded a whopper of a largemouth to Ed. Prime, of Philadelphia, in October. The big fellow measured 21¾ inches in length and weighed 6¾ pounds.

Ten smallmouth bass, from 10 to 15 inches in length and a pickerel measuring 22 inches was the catch made one August day in the Juniata River by Fred Seitz of Altoona, according to Warden Bill Keebaugh of Hustontown. Another big catch was that of Ed



JOHN STELONSKI AND ED STARKEY, OF PLYMOUTH, EXHIBIT 8 FINE LARGEMOUTH BASS FROM WALLENPAUPACK

Hudson who landed eight bass varying in length from 10 to 14 inches.

Plugging in Bald Eagle Dam during October, Joe Bickel, of Lock Haven, landed three pickerel, 20, 19 and 17 inches respectively in length, writes Warden George Sperring, of Lock Haven.

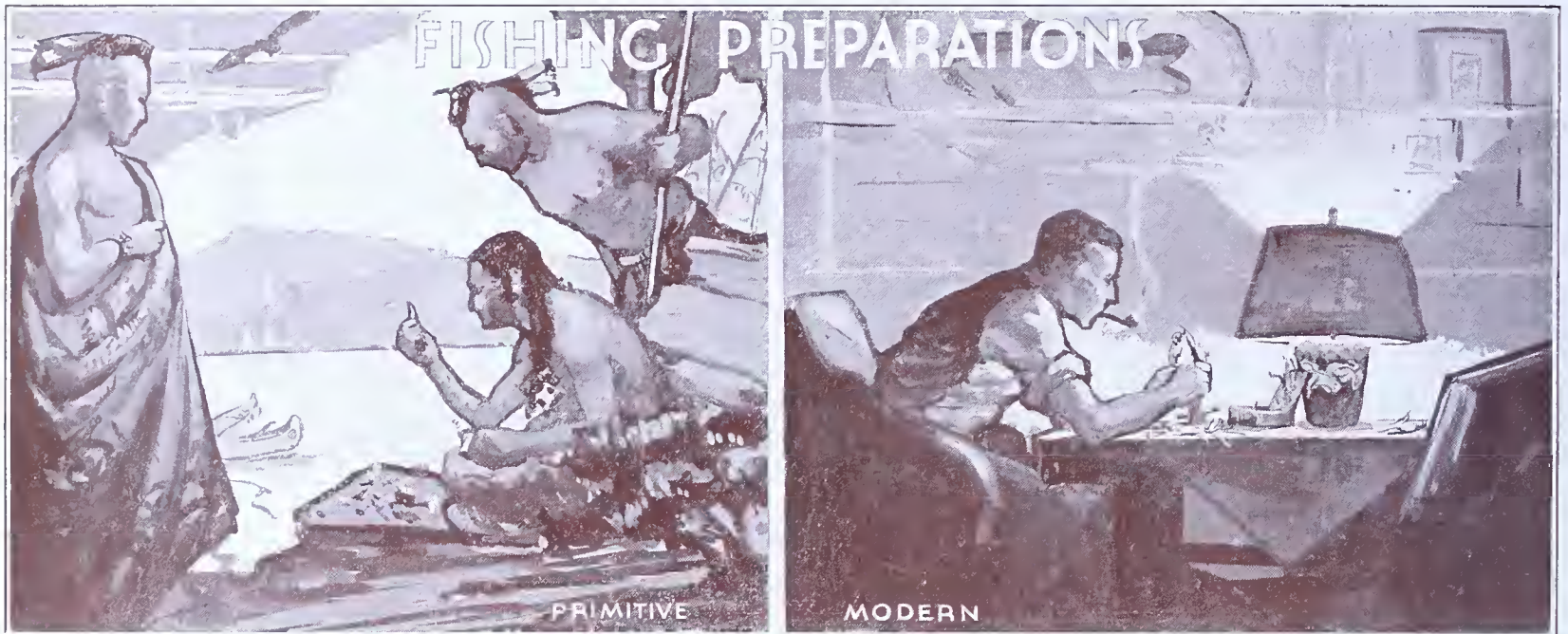
Five largemouth bass that had a combined weight of 19½ pounds were caught by Alex Skinder, Pittsburgh, in Oneida Dam, Butler County, one day in October according to Warden J. H. Bergman, of Butler.

Fishing in the Harmony Junction dam on Conoquenessing Creek on October 13th, George Allsman, Harmony Junction, caught 6 smallmouth bass ranging in length from 11 to 13 inches.



STOCKING TROUT

Pennsylvania Angler Fisherman's Calendar, 1935



SUCKER FISHING TIME

1935 JANUARY 1935						
SUN	MON	TUE	WED	THU	FRI	SAT
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

1935 FEBRUARY 1935						
SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

1935 MARCH 1935						
SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

THE TROUT STREAMS CALL

1935 APRIL 1935						
SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

1935 MAY 1935						
SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1935 JUNE 1935						
SUN	MON	TUE	WED	THU	FRI	SAT
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

BASS, PICKEREL AND PIKE TEST FISHING SKILL

1935 JULY 1935						
SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

1935 AUGUST 1935						
SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

1935 SEPTEMBER 1935						
SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

THE BASS FISHERMAN'S HEYDAY REVERY

1935 OCTOBER 1935						
SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

1935 NOVEMBER 1935						
SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

1935 DECEMBER 1935						
SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

PENNSYLVANIA ANGLER



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PHOTO BY LAMAR MUMBAR

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BOARD OF FISH COMMISSIONERS

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HONORABLE GEORGE H. EARLE
Governor of Pennsylvania

A Message to Pennsylvania Sportsmen From Governor Earle

FELLOW SPORTSMEN:

I am grateful to the Editor of your ANGLER for this opportunity to send a message to you.

Pennsylvania has achieved an enviable position as a leader in game conservation, largely through the efforts of the organized sportsmen in holding true to two great principles. The first, that the Game Commission should be constituted and its affairs administered on a non-political basis. Trouble has followed as a result of relaxation of this rule.

The second and equally important, is the preservation of the Game and Fish funds. Hunting and fishing license fees are in no sense a tax. They are rather voluntary contributions by the Sportsmen of the State to the cause of conservation. It would be a breach of trust to divert them.

The first of these principles I propose to restore to activity, and the second to uphold. In this I ask your loyal support, so we may keep Pennsylvania in front as the best game State of the Union.

287170

Insect Killers of Fish

FLICKERING half-light penetrates the water of a tiny bay in a woodland pond. The home of sunfish, minnows, catfish, suckers, and pickerel, this pond harbors fishes common to our waters when the Red Man knew them. In it, nature's balance has been maintained. Its weed-beds are rich areas for the production of aquatic organisms so essential to the development of baby fish; fed by deep-seated springs, its water level varies but slightly during the year. There is a faintly brown tint to the water, not sufficient, however, to retard a view of the strange drama being enacted in the little bay fringed by the weedbeds. For here, lurking in the weeds, are strange creatures, insect destroyers of fish life that in voracity and sheer lust to kill are unequalled in the water world. Like the vampires of legend, they destroy by sucking the life from their victims.

First to attract attention is *Dytiscus*, a predatory diving beetle about two inches in length, armored for protection and capable of destroying a fish several times its own size. Its body, oval in shape, flattened and having a smooth polished surface, is black in color and fringed with lighter margins. Concerning it, A. B. Champlain, curator of insects of the Pennsylvania Department of Agriculture, has written: "Both adults and young of this group are fierce and voracious, consuming great quantities of aquatic forms of life."

As *Dytiscus* plunges toward the pond bottom in search of prey it carries with it a tiny bubble of air which is to serve as an oxygen supply while it is beneath the surface. Its body is propelled by long hind legs fringed with stiff hairs.

Tiger! Tiger!

But if *Dytiscus*, the diving beetle, is somewhat appalling in its method of destruction, its larva, the water tiger, is truly terrifying. Perhaps "water tiger" is not the most applicable term for it, this long slender creature, equipped with sharp-pointed hollow jaws. Rather, there is much suggesting that bloodthirsty killer of the animal world, the weasel. Its sinuous swimming and manner of attacking a victim holds a strange likeness to the tiny ace-killer of the animal kingdom.

Propelled by hair-like fringes on its legs and the last two segments of body and tail, the water tiger stalks its quarry among the weeds of the tiny bay. In this miniature creature are incorporated all of the qualities of the killer, and soon it is to find a victim. As it glides between the weeds a young pickerel is caught off-guard. Here is one of those strange incidents that add such startling color to the life of the water world. Instinctively following the pickerel habit of awaiting its prey in concealment, the young fish, representing a species second to no other in voracity in the inland waters, suddenly is made the victim of a killer even more ruthless than itself.

The struggle soon terminates, for when

the water tiger has struck a quarry almost inevitably death follows. Its sickle-shaped jaws tear into the pickerel, and clinging there, this amazing insect terror absorbs the life from its prey.

In the daphnia beds at Pleasant Mount hatchery, water tigers frequently are observed. Viewing them from above as they glide through the water in the ponds, one has the impression that they swim on their sides. Both the diving beetle and its larva are cannibalistic by nature, preying on others of their own kind and larva and water forms of different species of insects. *Dytiscus*, the diving beetle, deposits its eggs singly in punctures made in green aquatic plants and from the day its young, the water tiger, is hatched, it is a voracious killer.

Giant Water Bugs

Just as *Dytiscus* and its savage protege are menaces to smaller fish and organisms of the inland waters, *Benacus*, a giant water bug, ranks as an outstanding enemy to larger fish. Somewhat oval in shape, these great sucking bugs that occasionally leave the water for short flights after nightfall possess jointed beaks directed backwards beneath the head with which they puncture the skin of a fish and suck its life juices. In color they range from greenish to brownish: their hind legs are long and powerful, somewhat flat in structure to aid them in swimming, while the forelegs are curved to help them in seizing and holding their prey. Like *Dytiscus*, the diving beetle, they and their young must come to the surface occasionally for air.

The giant water bug in our woodland pond is following a system not unlike that of the snapping turtle in seeking its prey. Blending well with the vegetation on the pond bottom its brownish body is not readily distinguishable to a passing sucker of possible four-inch length. As the fish passes the great insect darts with incredible rapidity at it. Those powerful curved forelegs grasp the prey and the beak is plunged into its body. From the instant of contact the battle is practically over. Possibly some poisonous secretion ejected from the beak of the attacker has served to stupefy the victim. As it sucks the life from the fish the bug seems to be having a leisurely time completing its work of destruction. These great insects have been said to attack fish three or four times their own size and usually come off victor in combat. Most of their lives are spent in the mud, silt, vegetation or rubbish on the bottom of inland water streams and lakes. Lying in concealment they find little difficulty in securing victims.

Champlain says concerning them: "During the warm evenings of midsummer and autumn, among the swarms of insects attracted to the arc lights, we are likely to encounter them in great numbers. They come out of the water for a short time at night, flying about in pursuit of mates or en route from one pond to another. These are true sucking bugs, of which there are a number of

North American species and several others that are confined to the tropics."

Benacus deposits its eggs usually on vertical plant stems above the surface of the water. These eggs are among the largest deposited by insects. When hatched, the young immediately enter predatory roles with an enthusiasm not greatly exceeded by their elders. Usually, in the early stages, their food consists of the eggs of fishes, young snails, and other small organisms. Fish spawn is eaten readily by both aquatic beetles and water bugs and their young.

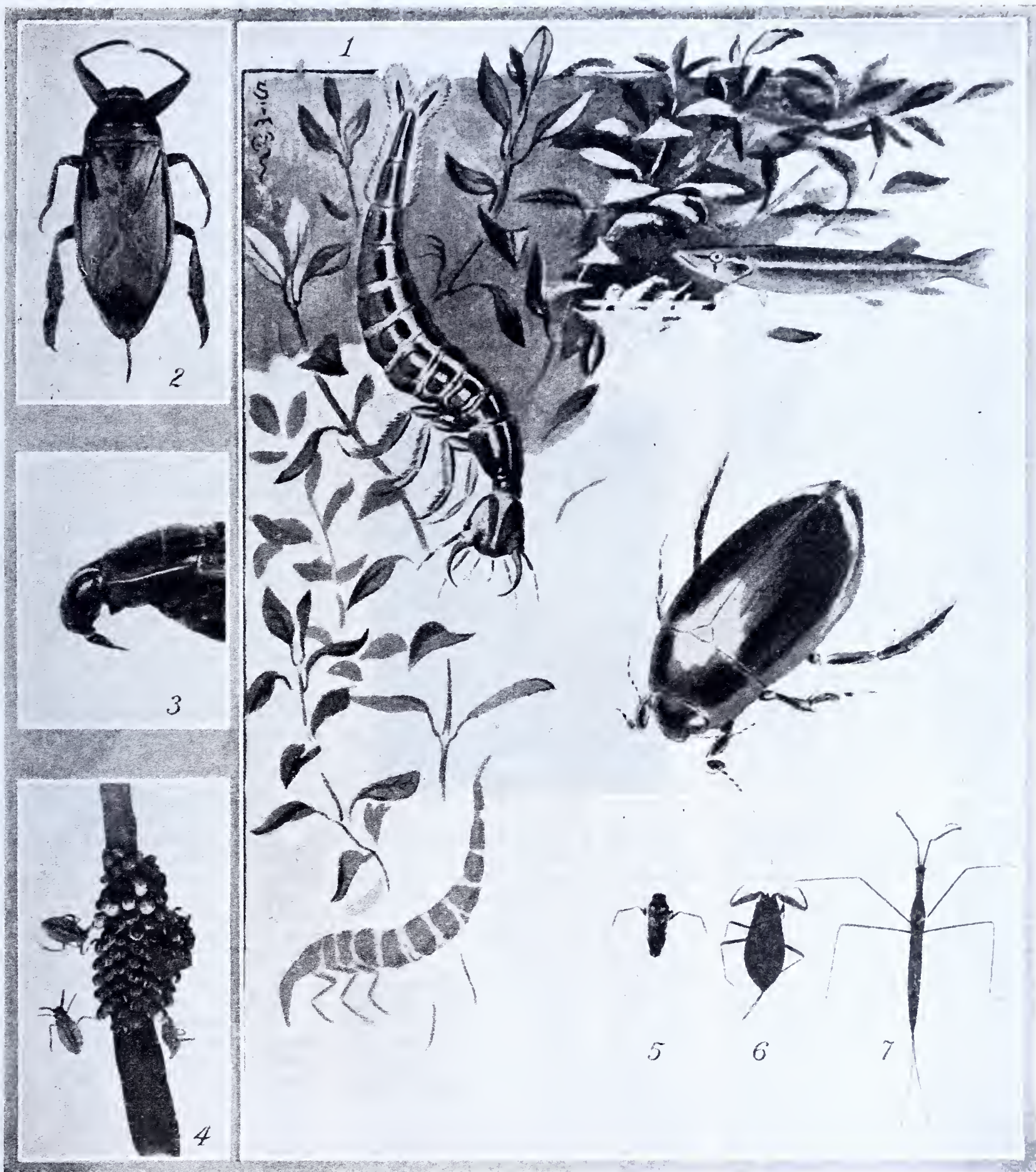
Water Scorpions

Comprising the last group of fish-destroying insects to be considered in this article are the water scorpions. Like the giant water bugs, these voracious insects rely upon their coloration for concealment on the stream bed or among the weeds as they await the approach of young fish. They also seek greedily for fish eggs. Two front legs are equipped for seizing the prey, while the other four legs are adapted to walking. In the water scorpion classification are two types. In *Nepa*, (illustration 6) in the accompanying cut, the body is flat and thin. *Ranatra* (Figure 7) has a long cylindrical body. Figure 5 illustrates the backswimmer, the back of which is shaped not unlike the bottom of a boat. These peculiar insects swim upside down and are equipped with sharp beaks through which they suck the life juice of their prey. They also have wings and are capable of flying from pond to pond.

Backswimmers and water scorpions are true bugs and bear a close relationship to giant water bugs in classification as well as habits.

The savage abandon with which insects pursue and capture their prey comprises one of the strangest chapters in the story of the water world. Comparatively small and difficult to observe in action (even the giant water bugs are usually under three inches in length) they perhaps exceed in voracity the most voracious species of fish life. These little creatures are endowed with amazing strength and their struggle for existence, not only with the various species of fishes but with others of their own kind, is perhaps the most relentless known today.

Then, too, they play a vital part in preserving the balance of nature which is so essential in any body of water. Their forays on the fishes help in holding the various species in check as to number or, in other words, aid in preventing any species from becoming too numerous in a limited area. And to counteract any undue increase in the number of fish-destroying insects—witness the cannibalism characteristic of all of the insects considered in this article. Nature's plan, therefore, calls for predators as well as non-predators, killers as well as the prey they seek. In the balance of nature, when not interfered with by man, all of these factors serve to benefit aquatic life as a whole.



(COURTESY—NATURE MAGAZINE)

THE WATER TIGER, SLENDER AND VORACIOUS, IS SHOWN IN FIGURE 1; A GIANT WATER BUG (FIGURE 2) AND ITS PREDATORY BEAK (FIGURE 3). YOUNG WATER BUGS ARE ALSO VORACIOUS. FIGURE 4 SHOWS THEM FEEDING ON EGGS OF AQUATIC CREATURE. IN FIGURES 5, 6 AND 7 ARE SHOWN THE WATER SCORPIONS.

Stream Pollution

A Federal Responsibility

By KENNETH A. REID

Member, Board of Fish Commissioners

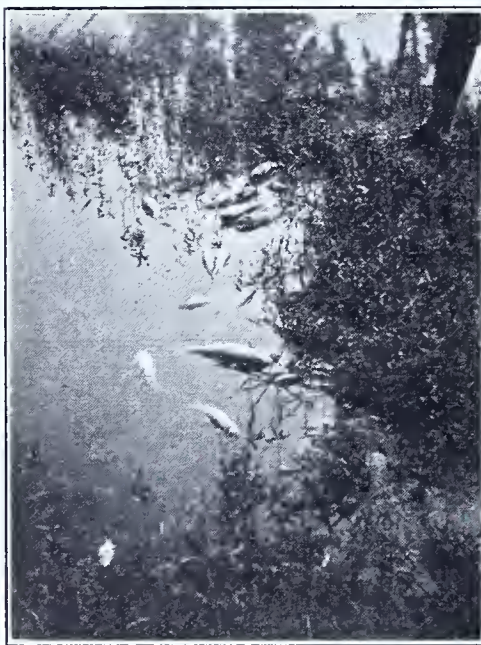
THE pollution of streams in the United States has become a major problem confronting the public and the government. During the earlier periods of our history when the population was considerably less and before the day of municipal sewerage systems and large, modern industries, the careless use of our waters resulted in only a fraction of the pollution that exists today. Yet the public and the government has been very apathetic about a very real problem that is becoming more acute every year and which will inevitably demand solution, regardless of how much we may try to avoid it. The longer we delay taking action the more difficult and costly it will become, for year by year it becomes more widespread and deep rooted. If the present trend is allowed to continue, we will, in the none too distant future, be confronted with the alternative of either *stamping out pollution or being stamped out ourselves by pollution.*

A review of anti-pollution laws shows that most states have such measures on their books, but closer analysis of their high sounding verbiage usually reveals weaknesses that render them ineffective and inoperative. Where the laws themselves seem adequate, enforcement measures or penalties are lacking, so that although pollution is "illegal" on the statute books, it is commonly practiced in the streams of the state without restraint or control.

For many years earnest and consistent efforts have been made to correct the pollution menace in many sections by local or state action. The legislative history of Pennsylvania, for example, shows that for more than fifty years, every session of the Legislature has had its anti-pollution bill, and further that in every session such bills have always been defeated by industrial interests—and always by the same argument. This argument is substantially as follows: "To require Pennsylvania industries to properly dispose of their wastes would penalize them in competition with those of other states in the open market and thereby put Pennsylvania industries at a competitive disadvantage." Regardless of the merits of this argument—and it has some merits—its effectiveness cannot be denied in the face of the long legislative record. During the same period, similar efforts have been made in these "other states" to correct their pollution, and these efforts have likewise been defeated by the very same argument. The first state won't do anything that might put its industries at a competitive disadvantage with the second state, and this second state won't do anything about pollution until the first state has acted, so neither does anything and nothing is accomplished.

Efforts to cope with pollution through

state health or water boards have likewise proven ineffective. Such boards usually either lack the authority to pick the needed action or fall under the influence and control of the polluting interests. Similarly, attempts to form cooperative agreements or pacts between adjoining states have consistently met with failure. Each wants all



the advantages of the agreement for itself and so no agreement is reached. Even disregarding the historical record of pollution cases, it is hardly reasonable to expect that any substantial progress can ever be accomplished by local or state action, for in most cases its correction would require the expenditure of money by one party, not for his own benefit but for the benefit of others below him; and sometimes this includes a business competitor. Human nature has not been imbued with any great amount of altruism where competitive business is concerned, nor will altruism be a voluntary motivating factor in future business operations. Elimination of pollution must be mandatory, but this mandate must be fair to all and detrimental to none to successfully accomplish the desired result.

How can this be done? By the simple and logical process of transferring to the Federal Government the direct responsibility for the purity of the nation's streams and waterways. As a matter of fact, when one studies the nature of streams and rivers, it soon becomes obvious that *there is no other practical way to deal with the problem.* Streams are governed by natural laws, and the water in them flows from county to county and from state to state with utter disregard

for man-made political boundaries. It is not possible to confine the effects of polluted water to the political division of its origin. More often than not, the injurious effects are felt in the adjoining county or state below rather than in the one of its origin. Where this is the case, we may rest assured that nothing will be done voluntarily by the offending parties for the benefit of their neighbors below them.

As a matter of fact, the great majority of pollution is interstate in character. Probably no river in the country presents a more complex pollution problem than the Ohio, and this river with its tributaries drains fourteen different states. Even a short river like the Delaware, drains four states, while the Connecticut includes in its watershed every New England State except Rhode Island, and its extreme headwaters extend into Canada. Even short coastal rivers that are entirely within a single state have a federal aspect when their pollution goes into the tidewater of the ocean, which is under Federal jurisdiction.

With the development of an interstate transportation system, the inadequacy of state control and the necessity for Federal regulation soon became apparent, and the Interstate Commerce Commission was created. There are many points of similarity between an interstate transportation system and an interstate river system, and Federal regulation is just as necessary for properly handling the pollution of the latter as it is for controlling the commerce of the former. Both are interstate transportation systems, but the river runs only one way and collects all the freight on its pollution cargo from the downriver communities and industries that must use its water.

The Federal Government, through the War Department, now has jurisdiction over all navigable rivers and their tributaries. However, it is contended that the executive branch of the Federal Government has no authority to stop pollution except where it interferes with navigation. As the effect of pollution on navigation is one of the least of its ill effects, the exercise of such control, from a pure water standpoint, is negligible in its effects. If no Federal agency has the authority to control or stop pollution in the name of the public's right to pure water, it is high time that the laws be amended or new ones enacted to specifically provide this authority. From a public interest and public welfare standpoint, the navigability of most inland waterways is of relatively little importance compared to their cleanliness and purity for truly public uses.

The set up of any Federal agency to cope with pollution should follow Nature's dividing lines rather than Man's arbitrarily

drawn ones. The country should be laid off and the work divided up by watersheds without any consideration for state or county lines. Some of the major watersheds where there is a great deal of pollution, like the Mississippi and even the Ohio, would likely need to be subdivided because of the vast area involved. Over each one of these watersheds would be a Federal "watershed board", whose business it would be to look after the purity of the waters in that division. The direction and coordination of the work would necessarily rest in a central Federal board or commission, preferably appointed by the President with the advice and consent of the Senate, or in some other manner that would assure its freedom from local or state politics and control.

The central watershed board should direct scientific research for the most approved methods of correcting various types of pollution and act as a clearing house for information pertinent to the work in addition to its capacity as directing head. To this end it would be highly desirable to select one watershed as a practical outdoor test laboratory for developing and improving methods of treatment for those trade wastes for which satisfactory methods of treatment may at present be imperfectly known. Along with the scientific research work, every source of pollution would be located, analyzed, and remedial measures applied so that this test watershed would serve as a practical demonstration and model for carrying on the work in other sections of the country. The Potomac River would serve admirably for this purpose, and its selection at this time would seem particularly appropriate since the capital city of Washington near its mouth has started the construction of a modern sewage disposal plant for properly taking care of its municipal wastes that have for years constituted a disgraceful source of pollution in the lower river.

The two principal types of pollution are municipal sewage and industrial. An orderly procedure would demand that municipalities discharge their obligation to society by installing adequate sewage disposal plants as one of the first steps in the program. A great deal could have been accomplished along this line, if in the allocation of Public Works funds in the Federal Emergency Program, it had been stipulated that "unless and until a municipality either had a satisfactory sewage disposal plant or had bona fide plans for installing one, it could not receive Federal funds for any other purpose." Such installations are inevitable, and there never has been a more favorable opportunity for their accomplishment.

Industrial pollution naturally falls under two headings: 1. That from active industries; a. That from abandoned industries. Obviously, the latter should receive first and immediate attention, for there is no excuse whatever for allowing pollution to continue to flow from industries that are permanently abandoned and of no benefit to anyone when methods for correcting this pollution are known. The sealing of abandoned coal mines in the bituminous field is a splendid example of a desirable use of federal funds along this line. It is unfortunate that this splendid work has not been allowed to continue without interruption until completion, and it is to be hoped that it may be reinstated on a more permanent and stable

basis. It could be carried on much more efficiently as an outright Public Works Project under the technical direction of the Bureau of Mines than when mixed up with various state health departments, county works administrators, etc., as it has been.

Before considering existing industrial pollution, let us consider another phase of pollution that is generally overlooked, but which is vitally important in the program. This might be termed future or potential pollution; that is the pollution from new industries that may from time to time be established in the future. All of our efforts to correct existing abuses will avail little unless we guard against their spread. Attempts to cure individual cases of disease without doing anything to prevent the spread of the disease is admittedly poor procedure, and yet that is exactly the situation in many cases of pollution. A case in point is the work previously referred to of sealing abandoned coal mines. Some of this good work has been largely nullified because while old mines were being sealed up, new, and un-



needed mines have often been opened up in the same valley.

It has been suggested to the Federal Government that some agency be set up regulating the opening of new and unneeded mines as is done in the case of railroads. The suggested watershed board or authority would be the ideal agency for such regulation. Such regulation would not only greatly benefit the public by preventing the spread of much needless pollution, but it would in a few years go a long way toward the stabilization of the coal industry, whose chief ailment today (and it has been in the same shape for more than ten years) lies in the fact that there are already far more mines and far greater production facilities than the demand for coal warrants. Under such conditions it seems criminal negligence to permit the indiscriminate opening of new and unneeded mines with the consequent addition to the pollution of public waters and the waste of such a valuable and irreplaceable natural resource as coal. The same principal might well be extended by the watershed boards to include any and all industries whose operations would pollute public waters—to the benefit of both the public and industry as there is overproduction in almost every line.

Active industrial pollution is the most troublesome of all because in most cases it is more destructive than other types, and it is from these industries, which almost invariably have powerful lobbies in the state legislatures, that the strong and successful opposition to state regulation of pollution

has come. During the early months of the NRA, the Code Authority was urged to give pollution of public waters consideration in the formulation of the different codes governing industry. Since codes were being imposed on all industries whether they liked them or not, it seemed entirely proper that the public's interest and right in pure water should have been given consideration in these fair play agreements. It was suggested that a blanket provision be included in all codes to the effect that: "Where an industry pollutes water, and where practicable methods of treatment or disposal of those pollution wastes are known, that such industry be required as a part of its code to instal and operate such treatment plant: and further, that some federal agency be set up or an existing one be utilized for determining 'practicable methods' for the treatment of the wastes of any industry where these methods are at present imperfectly known."

This seemed a golden opportunity to correct this industrial abuse along with others, but the Code Authority took the position that it should confine its deliberations to relations between Capital and Labor, particularly with regard to wages and hours of labor. The fundamental rights of the public in pure water were apparently not deemed appropriate for their consideration.

In every discussion of the pollution problem, someone always raises the matter of treatment or disposal cost as a prohibitive item. Even though this cost figure is usually greatly exaggerated, it nevertheless is a serious stumbling block from a state regulation standpoint. But when it is viewed from the angle of federal regulation, the successful argument against "competitive disadvantage" completely disappears from the picture. Federal regulation of pollution would put all industries on a level competitive basis and eliminate some of the inequalities that exist today by reason of some industries, either voluntarily or because of local requirements, going to some expense in treating their wastes while most others do not. The Public would gladly pay the treatment bill in the form of a slightly increased cost on some commodities in return for pure water.

As a matter of fact, in the final analysis, the Public would have no treatment bill to pay. It is already paying the bill with interest, only in other ways, and without getting pure water for its money. The present system is simply one of passing the buck. It permits one party to save a few dollars by using the public waters as depositories for his raw wastes, only to impose a greater expense on others below him, who must remove these wastes before they can use the water. In many cases the down river water treatment bills would more than pay the cost of proper treatment at the source of pollution, and if the money were spent in that manner, we would have clean waterways as a clear dividend. Even if it did entail some additional expense, what more appropriate use could be made of Federal funds that are already available for relieving unemployment, than to clean up the nation's waterways—a job that sooner or later the Federal Government must face squarely and do. There is no other agency that can or will do it, and the future welfare of our nation demands that it be done—and the sooner, the better.

Latest Developments in Stream Purification Plan

ON December 6, 1934, some thirty stream purification advocates met in the office of Secretary of War Dern in Washington at the invitation of Senator Augustine Lonergan of Connecticut for the purpose of formulating a comprehensive plan for stream purification on a nation-wide basis. The conference was presided over by Secretary of War Dern, and included representatives from such Federal departments or bureaus as the Bureau of Fisheries, Public Health Service, National Resources Board, Biological Survey and War Department, as well as representatives from several Eastern states, including Hon. Grover C. Ladner, Deputy Attorney General, and Hon. Kenneth A. Reid, Member of the Board of Fish Commissioners, from Pennsylvania, and Senator Lonergan and Congressman A. Willis Robertson from the National Congress.

At the close of the conference Senator Lonergan appointed a sub-committee to draft a definite plan to be submitted back to the conferees for approval and then to be submitted to the President and Congress for appropriate action. The sub-committee disagreed on some points, with the result that the conferees had submitted to them for vote what was termed a Majority Report, signed by Federal representatives, and a Minority Report, signed by Hon. Grover C. Ladner of Philadelphia, and Dr. D'Arcy Magee of Washington, representing the Izaak Walton League. A majority of the conferees voted in favor of the Minority Report which has now become the report adopted by the Conference. Summarizing, this report is as follows:

1. That there should be conferred upon the National Resources Board or some appropriate existing Federal agency the power to control pollution in the nation's waterways by watersheds irrespective of state lines; to make any further studies that may be necessary; to assemble and correlate the data that is already on file in various states and various agencies of the Federal government; and to appoint watershed boards to have jurisdiction over the different watershed pollution abatement districts established.

2. Each watershed district so set up should be empowered to require abatement and prevention of all water pollution within the area of the district; to require the installation of sewage disposal plants, industrial waste treatment plants, and to arrange for necessary financing for construction of these treatment plants as Federal public work projects, this to include the power to install treatment plants to be paid for by the government and leased to the municipality or industry either on a conditional sales amortizing agreement or on a rental basis until such time as they can be paid for, with the provision that any profit from any by-products recovered belong to the government until the purification plant is paid for.

3. That pollution of waters is declared to be a public and common nuisance, and that the United States Attorney be authorized to bring appropriate action in the name of the United States at the instance of the

watershed board in any Federal court sitting in the district which is to be given jurisdiction for that purpose. Where an individual, corporation, or municipality now has the right to bring action for damages from pollution under the present law in any state, this right is specifically reserved.

The Report also suggests an amendment to the Deposit of Refuse Act to make it include "sludge, acids and sewage, whether passing therefrom in a liquid state or otherwise." (The weakness in this Act at present is that it applies only to the discharge of solid matter into waters.)

Recommendation is also made for amending the Oil Pollution Act to include discharge from the shore as well as from vessels.

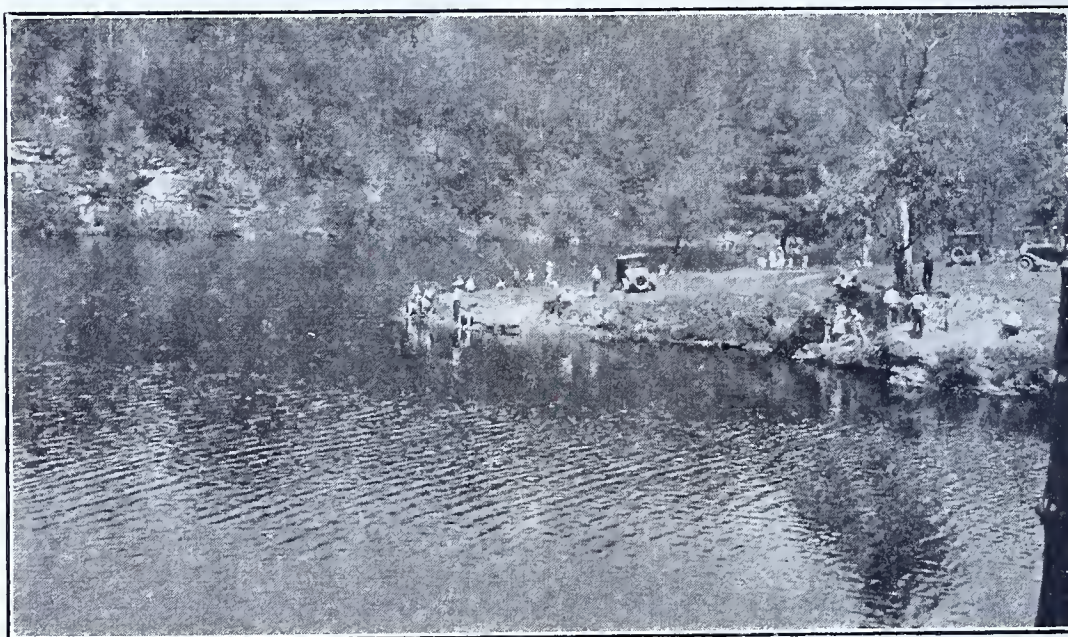
This plan boldly asserts the right of the Federal government to control pollution of

until he can confer with this group and thereby co-ordinate all efforts toward solving the nation-wide pollution problem. In the meantime, you are urged to contact your congressmen and senators so that they may give their support to this worthy plan.

POLLUTION EFFECTS ON FISH CHECKED AT PLEASANT MOUNT

During the past three years extensive experiments on the effects of various types of pollution on fish life have been carefully checked in a specially constructed laboratory at the Fish Commission's Pleasant Mount hatchery. These experiments, under the direction of Fish Commission experts in conjunction with engineers of the Sanitary Water Board have been made to determine concentrations of pollution necessary to kill fish life in a stream.

In conducting the experiments, fishes native to Pennsylvania waters were used and their reactions to the various pollution concentrations were carefully checked.



A FISHING SCENE ON THE CLARION RIVER BEFORE THE MAJOR FISH KILLING BY POLLUTION LAST SUMMER

the nation's waterways on the ground that flowing water and its attendant pollution and its effects cannot be confined within local or state boundaries. Legislative history is replete with examples of failure to cope with the pollution problem by state action or by compacts between states because of the argument of possible competitive disadvantages that might result from action by individual states or several states together in a compact. The national plan does away with this argument by eliminating all inequalities and putting all industries on a level competitive basis. The plan offers a splendid opportunity for a permanent and worthwhile public work that will be of general rather than local benefit, and which can be started without delay if Congress will grant the necessary authority.

Due to an independent investigation by the Water Resources Section of the National Resources Board which was started some time ago but which has not yet been reported on, Senator Lonergan is holding up final action on the Report of the Conference

THE FELLOW WHO ALWAYS HAS AN ALIBI

By DON FINLEY

It is always too cold, or the water too high. Much too wet, or else too dry.

The hatch comes too late, or the sun is too bright.

Just seems as though things never are right.

This stream wasn't stocked, or too many fishing ahead.

They were hittin' last nite, or so Hank said. The day was too cloudy, the sky much too clear.

Missed three good strikes, d— that last bottle of beer.

All fishermen that expound on the ORS, IFS, or TOOS

Should be cordially greeted with the loudest of boos.

They should gather together in league just as one,

And bray in unison, maybe some good would come.

BIG PIKE CAUGHT IN SUSQUEHANNA



JOSEPH STARR EXHIBITS HEAD
OF COLLIER'S BIG PIKE

That wall-eyed pike or Susquehanna salmon grow plenty big in the Susquehanna River was demonstrated last summer by John Collier of Harrisburg, according to Joseph Starr, also of Harrisburg. Fishing at Cove, about 12 miles upstream from the Capitol City, Collier hooked and landed a pike that measured 30 1/4 inches in length and weighed 10 1/2 pounds. The big fish was taken on a live minnow, after a hard tussle in which it towed Collier's 12-foot boat for a considerable distance. Finally, when it stopped in clear and fairly shallow water, Collier gaffed it and tossed it into the boat.

On the day he caught the big pike, Collier also landed four nice bass, while Starr's catch consisted of five bass.

ANNOUNCE RESULTS OF FISHING CONTEST

At their January meeting, members of the Monocacy Field and Stream Association heard results of the fishing contest conducted by the Association during 1934. Some fine fish were taken in this contest. Winners in the various classes and their awards follow:

Brook Trout—Robert Williams, 14 11-16 inches, weight, 1 pound 2 ounces, caught in the Monocacy Creek, trout rod; Robert Sinwell, 13 1-8 inches, weight, 12 ounces, caught in Monocacy Creek, trout line.

Brown Trout—Oliver Welty, 21 inches, weight 3 pounds, 12 ounces, caught in Spring Creek, fly rod; Robert Hartzell, 19 1-4 inches, weight, 3 pounds 1 ounce, caught in Monocacy Creek, trout line.

Rainbow Trout—Leo Werkheiser, 15 3-8 inches, weight, 1 pound 8 ounces, caught in Musconetcong, fly rod; Willis Nolf, 14 5-16

The Trout Fisherman

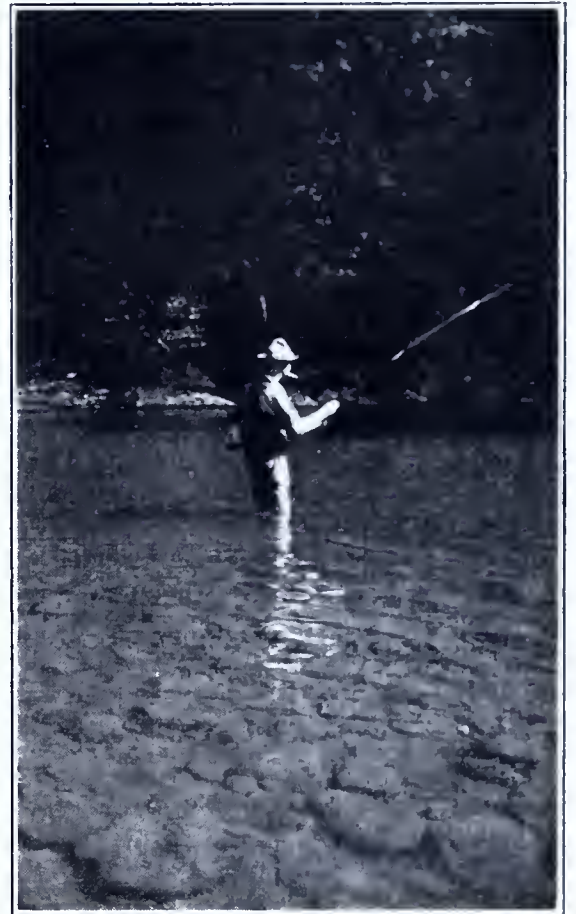
By

GEORGE W. CONWAY, JR.

I ENJOY watching him for he uses the right equipment in the right way, skilfully and effortlessly. He is a real fisherman, typical of the class of anglers who fish for the aristocrat of fresh-water fighters—the trout.

He stands in the swift current, keeping his balance with apparent ease, and manipulates a long, flexible rod as though it were an integral part of his body. His hip boots are almost a necessity, for it is early Spring, and the water is still very cold. Various items of his tackle are employed as he hooks and lands a twelve-inch brook trout. The net he has been carrying on his belt is deftly brought into play, and the fish is captured. After killing it by a rap on the head with a sheath knife, he slips it into the creel carried at his side. In preparation for the quieter water of the pool a little way ahead, he changes flies. His supply of the artificial lures is kept in a fly-box where it is not in the way. He carefully considers the choice of fly, and then ties it to the end of his leader. The fly he is using is not one of the ready-smelled variety, but is tied directly to the end of the long, tapering leader. After the knot has been adjusted to suit him, he moves quietly upstream a little way and starts fishing again.

His motions are unhurried, but graceful and powerful. His casting is worth watching and imitating, if possible. He sends the light fly through the air with accuracy and delicacy. It lights upon the water without any trace of a splash, rattle, or disturbance. It shoots beneath overhanging branches in a manner that shows almost perfect control. Ability such as he is showing usually gets results, and he is not an exception. But he does not keep all of his catch. The smaller trout are released, unharmed, and no more



of the larger ones are kept than he knows will readily be eaten.

This man is a real trout fisherman. He is skilful in using the right tackle, and is generally rewarded by such sport as the average angler only dreams of. He is, however, more than a mere fisherman. He is one of the men who make fishing better, conserve wild life, help beginners, uphold the law and its ideals. In short, he is a true sportsman.

inches, weight, 1 pound 4 ounces, caught in Musconetcong, bait box.

Smallmouth Bass—Charles Birk, 18 inches, weight 2 pounds, 13 ounces, caught in Unity Lake, casting rod; Robert Borst, 13 5-8 inches, weight, 1 pound 6 ounces, caught in Delaware River, a level winding casting reel.

Largemouth Bass—Robert Sinwell, 17 inches, weight, 2 pounds 12 ounces, caught in Saylors Lake, casting rod.

Pickrel—Donald Sawyer, 23 1-2 inches, caught in Mountain Lake, landing net.

Yellow Perch—Harry Meyers, length 13 1-16 inches, caught in Unity Lake, merchandise; A. J. Birk, length, 13 inches, caught in Unity Lake, ash tray.

CORRECTION

Through a misplaced caption, the cut appearing on page 11, of the December ANGLER carried the information that it represented a 39-pound muskellunge caught in

Lake LeBoeuf, Erie county, by Fred King of Waterford. It is regrettable that this mistake occurred, for the big muskellunge was landed by the late Noah W. Porter, grandfather of Mrs. D. J. Toner of Union City. A veteran sportsman, Mr. Porter derived much pleasure during his life in fishing waters of Erie County.

NEW MAGAZINE

Another important step in the remarkable forward strides in recent years made by the Monroe-Pike Sportsmen's Association was taken in January with the appearance of a monthly magazine entitled *The Monroe-Pike Sportsman*. This new magazine, which will serve as a contact between members of the Association and contains many fine features on fishing and hunting, is exceptionally interesting. The Association and editor, George W. Arnst, of Cresco, Pa., are to be highly commended for the publication of this fine magazine.

Streamside Reveries

By N. R. CASILLO

HOW fascinating are the countless moods of a stream as it placidly twists through fragrant meadows, whispers under stretches of overhanging shrubs, or murmurs through shadowy woodlands.

Little Sandy Creek is characteristic of many such streams albeit with much individualism of its own. Its birthplace is an icy spring half hidden among dewy ferns and other dank plants on a high, moist hillside. Like a creeping infant it whispers quietly along in a tiny trickle, ever-growing in noisy boisterousness; tumbling over rocks, shuffling over shelves, and brawling in the shallows. Soon after it crosses the Raymilton road, it passes into a vast mixed woodland known locally as Hell's Kitchen, to hold temporary communion with the numerous denizens that live in the wood. It is at the bridge that most anglers in the know hit the stream to take toll of the three kinds of trout that live in the remarkably clear water.

The sun was just slipping behind the alders above the bridge when George and I arrived for the evening fishing. At the bridge we parted, he going upstream to fish dry and I down to give my wet flies a whirl. There was a heavy hatch of black gnats skittering and dancing over the still reaches so I tied on my tiniest fly of corresponding pattern. Cautiously, I slipped through the grass up to within casting distance of a small pool and cast my fly into the riffle at its head. Slowly and naturally it danced over the wavelets and then upon reaching the still water it sank. I was about to retrieve it when there was a sudden splash and jerk, my rod nearly slipping from my hand. However, the fish, a beautiful eleven-inch rainbow, had hooked himself and immediately began to go through his bag of tricks. Two quick jumps, a rush upstream, a beautifully executed turn nearly out of water, and he was away downstream. Then I experienced that weakening sensation produced by the thought of a lost fish until I again felt his lithe strength at the end of the line. I applied a little pressure and saw his gleaming sides turn against the current, resulting in an astounding pull. But that was his last gesture for I reeled him up to my waiting net and had him. Almost reverently I lifted him, a plump, artfully proportioned fish, firmly knit, and as cold as an icicle.

Again I dropped the fly and watched it drift into the pool. There it was caught by a stray current and was shot across to a spot where the feathery sprays of hemlock nearly touched the water. The quick movement proved alluring to a ten-inch brookie which I failed to hook on his first sally. Undaunted, he turned and rose again, this time making fast. A dozen more casts proved unfruitful so I passed on into an ancient beaver meadow where the stream sought respite from its hustle and bustle by slowly meandering between deep-cut banks.

When within thirty feet of a favorite pool I was brought up short by peculiar gulping sounds apparently issuing from the pool and occurring at irregular intervals. Filled with

curiosity I made careful haste, parted the grass at its edge and peered down into the pellucid water. What a sight! The water was low and the small pool was landlocked from the rest of the stream by two narrow sandbars. Moiling restlessly about in less than two feet of water were at least twenty-five sizeable trout of mixed species. At intervals grasshoppers would blindly jump from the grassy banks and fall sprawling on the pool's surface. The strange sounds were produced by the rising trout as they greedily engulfed the hapless hoppers.

No place to fish unless you were after fish. Their uniform size indicated the inroads of cannibalism, while numerous mink tracks on the sandy margins attested to other losses. It was an easy matter to open a channel communicating with a stretch of deep water and into which I drove the fish. Returning to the spot later in the day I was given a demonstration of the trout's capricious temperament by not getting a single rise to my offering of a variety of flies. It does seem that a trout possesses more moods and eccentricities than the streams they inhabit. Factors that contribute much to the fascination of their capture.

Farther down, where the stream again straightened out between aisles of alders and willows I experienced the thrill of another strike, but missed the fish. Then on six successive casts I received as many strikes and missed every one of them! On the seventh attempt I connected and landed a curiously formed eight-inch brookie. The upper mandible was entirely lacking, giving the fish a grotesque, pug-nosed aspect, reminding one of the flat face of a Pekingese dog. The

malformation also explained my misses, for it was a mystery to me how I managed to hook him at all. The game little fellow deserved his freedom, so I slid him into his element to again take up the uncertain game of life. I must add that in spite of his handicap he was in good condition and apparently well-fed.

Dame Fortune was kind for scarcely moving from my tracks I hooked a brown trout which proved to be my largest fish, over a foot long and in prime condition. Indeed, I've never caught a trout out of Little Sandy that wasn't top notch. I wasn't particularly elated over my latest catch because I had lured it with a home tied fly. In fact it was the first fly of that particular pattern that I had ever tied, a misshapen creation that passed for a cowdung. It is my contention however, that a home-tied fly made with an honest attempt to imitate the actual insect is more effective than the fancy-tied imported and domestic artificials. Manufacturers both here and abroad are just beginning to realize that fact.

Creeling the fish, I pushed on, my thoughts dwelling on a pool not far distant; a spot that is matchless in its setting, flanked as it is by laurels and hemlocks all comfortably huddled under the spreading branches of a gigantic red maple. Beside, Red Maple Pool, as I christened it some years ago, has a reputation, for in it lives the King of Little Sandy, a big brown trout that has been hooked and lost by some four or five anglers, including myself. On an earlier occasion I had inveigled the King into accepting a brown hackle. However, when I had finally worked him up to the net, a convulsive leap



GEORGE SHORT LANDING A NICE BROWN TROUT IN LITTLE SANDY CREEK

snapped my tight leader and won the day for him. I remember only too well that I swallowed hard as I watched his huge form disappear into deep water; yet, I was glad that I had had him on. He had bested me in a fair fight, and after the raw edge of my disappointment had worn off, I couldn't help but feel some measure of admiration for the old warrior.

His latest escape had been made less than a week before this day whereof I write, when a New Castle angler lacking a landing net attempted to beach him. Indeed, the leader snapped after the fish had been drawn up out of the water; then before the frantic fisherman could get to him he had flopped back into the water and was gone.

Red Maple Pool is located not more than a hundred yards below the second bridge and I made for it as fast as it was feasible. This necessitated skirting a beaver pond just above the lumber camp on the north side of the bridge. I never did have much luck in that beaver pond (altho' dozens of large fish could often be seen disporting themselves in the clear water), so that passing it up didn't matter very much. The nearer I got to the pool the more expectant I became, so that by the time it hove into sight I was well fired-up. Curbing my impatience and excitement I slowed down and approached from the shaded side.

Cautiously parting the branches of a covert of hemlock I peered out on to the pool. As usual, it was as quiet and as unruffled as a mirror. Here were no small fry to violate the King's domain, to dimple and crack that placid surface. The only visible living thing was a huge sucker diligently vacuum-cleaning a fringe of aquatic plants located in the shallows. Carefully I worked my way to the head of the pool and dropped a gray gnat to the smooth surface; and as I worked it here and there I could not help but feel some apprehension at the disturbance that I was creating. Momentarily I expected the big trout to rise and take my fly.

For nearly an hour I whipped every square inch of the pool with every one of my dull-colored flies without success. At last I sat down, lit a cigarette and ruminated over the situation. There came to my mind a dozen good reasons why the King had refused my offerings; my conclusion being that he was indisposed and would probably be in a more receptive mood later in the day. So I passed on downstream oblivious of the surprise that was to be my lot.

At the foot of Red Maple Pool there is a small bay, merely an indentation scarcely more than six feet in diameter, which during times of low water is separated from the main pool by a shallow neck or miniature strait, if you please, shallowly cut through the quicksand comprising the sandbar. At all times this little bay teems with all kinds of coarse fishes, such as daces, shiners, etc., undoubtedly collecting there because of their highly developed gregariousness, as well as for the abundance of food organisms found in the shallow water.

Upon approaching the bay I stopped in amazement upon seeing a fish about the length of a man's arm dashing madly about its narrow confines and finally effacing itself in the clouds of silt that it stirred up.

Well, to make a long story short, it turned out to be the King. I quietly waited until

the heavy silt had settled and he stood disclosed in all his glory, slowly fanning his great caudal. It was not difficult to decipher the story. Apparently the fish had blundered into the bay to prey upon its teeming denizens, and as fate would have it, a part of the bank of the miniature strait had collapsed. Anyway, whatever the explanation, there he was effectively confined and easily to be caught with but little effort. What did I do? Just exactly what you would have done—the King still lives, long live the King!



Seth Says

Not so long back, Jerry Tims an' me was a-fishin' fer suckers down by ol' man Corkins place. We had jest got set right nice an' Jerry was a-hossin' in a 'big sucker when a feller sez

I ain't allowin' no fishin' on these premises, so git out. Well, sir, we was plumb upso't, but soon's we turned an' he seen who we was he sez alright, go ahead an' fish. We was both itchin' ter know jest what hed come inter the ol' man fer he never acted that way afore. He hes some right good fishin' water runnin' by his place an' some all-fired good squirrel woods up on the ridge back o' his house. So Jerry an' me asks him jest why he was a-cuttin' down on the fishin' an' he tells us.

It seems like last spring there was some fellers let a gate in the pasture open an' his cows got out an' raised merry ned with his wheat. Thet upso't the ol' man a lot, an' then some other feller cut right through a wire fence ter go a place ter fish. An' ter top it off, some hunter shot his tame turkey gobbler an' made away with it. He sez he found whar it hed been downed right near the edge o' the woods. An' now, sez he, I'm gonna put up signs an' keep 'em all off. Course, my neighbors'll be welcome any time, an' he leaves us.

Talkin' it over, Jerry an' me figgered that he was jest actin' within his rights. Course, we're both farmers, but there ain't no use in sayin' that this here postin' business ain't got two sides. I ain't speakin' no names, but I know one er two cases where land's posted jest out o' pure cussedness. Most o' us fellers like ter give the feller from the city a break an' so long's we're treated decent there ain't a-goin' ter be no trouble.

Figgerin' it all up, ef a man's a good clean sport, nine out o' ten times he'll be met half-way er even better. I reckon this fishin' an' huntin' game hes ter be give an' take, even up.

SUCKER CATCHES

Franklin County sucker fishermen enjoyed exceptional fishing during the waning days of December, according to a report received from Warden Charles Long of East Waterford.

Trying his luck at Hoover's Dam on the Conococheague Creek on December 20, John Worthington of Dry Run caught 22 suckers. Returning to the same place next day he duplicated that catch. Wilson Flegal of Medal caught 22 suckers in a day's fishing at Medal on the Conococheague.

RAINBOW TROUT IN THE ALLEGHENY

Famous for its smallmouth bass fishing, the upper Allegheny River also provided at least one evening's sport with fighting rainbow trout during the 1934 fishing season, according to Warden R. C. Bailey of Youngsville. And for some reason or other, the rainbows seemed to favor the presentation of lures by Ben Tellerico of Bradford.

Bailey writes that a group of anglers from Bradford were trying their luck one evening in June near Corydon on the Allegheny when Ben took his position in their midst. Ben's lure had hardly more than hit the water when a 13-inch rainbow struck it and was landed. A few minutes later, he creeled one measuring 14 $\frac{3}{4}$ inches, and shortly thereafter, his fellow anglers remarked that the fish seemed to be jumping over the other lines to get at Ben's. Just to prove that they were right, he landed a rainbow trout measuring 17 inches. After that, he decided to quit, with the remark that as they seemed to be coming heavier each time, he might be in danger of hooking a fish that would pull him into the river.

While the other fishermen were using live crayfish for bait, Ben used only crayfish tails.

MANY THANKS

THE ANGLER appreciates greatly the following comments which appeared recently in the *Millersburg Sentinel*. We quote:

"Now that the game hunting season is over and the fishing season, the best locally for many years, also is at an end, sportsmen will want to continue to hunt and fish by the fireside during the winter months, through good magazines.

"Two great monthly magazines which every sportsman will like and should receive are *Pennsylvania Game News* and *Pennsylvania Angler*, published in Harrisburg by the Game Commission and Board of Fish Commissioners, respectively.

"Both are well printed on good paper, well edited, contain good stories, good pictures and everything of interest to the sportsman. Leo Luttringer, Jr., is editor of the *News* and Alex P. Sweigart editor of the *Angler*, and the subscription price of each is but 50 cents per year, check or money order, addressed to either magazine, South Office Building, Harrisburg. Every sportsman needs these fine magazines."

STOCK TROUT ON HORSEBACK

One of the most unique methods ever to be used in stocking trout in Pennsylvania was employed recently in releasing fish over legal six-inch size in Lick Run, Clearfield County. The stocking was conducted on horseback.

According to Warden Dave Dahlgren, two pairs of trout were strapped to each horse, and the fish were then taken to points on the stream difficult of access.

Commission to Sponsor "Plant a Willow" Drive

COVER and more cover. That, apparently, is one of the first requisites to be considered in the stream improvement campaign now about to enter its third year here in Pennsylvania. Briefly, more cover, brush and trees fringing trout waters, may be a deciding factor in increasing their carrying capacity for trout. Additional shade will aid in holding down the water temperature during hot summer months; interlacing tree roots will help to prevent soil erosion, the washing of sediment in large quantities into streams from the banks, and finally, additional foliage will serve as cover for insect life that, falling upon the water, is such an important forage asset for trout.

In advocating the planting of willow shoots, as first suggested by Hon. Leslie W. Seylar, member of the Board, the Fish Commission believes that a major and vital step will have been taken toward increasing stream cover. At a recent meeting of the Board, a resolution was passed to sponsor a state-wide "Plant a Willow" campaign during 1935. In this resolution, the Board urged that wherever possible, weeping willows be planted as they are more symmetrical and longer lived.

Under a tentative plan adopted, wardens of the Board will contact all persons making inquiry concerning the planting of willow trees and give information where necessary. Where willow shoots are not available for planting, the Board will furnish these shoots and every possible assistance will be given in planting them. Meadow land is particularly adaptable for the planting of these picturesque trees, and it has been suggested that the shoots should be planted at intervals of 50 feet, unless unusual conditions warrant closer planting or planting at wider intervals. The thought expressed is that landowners co-operating in the campaign to increase cover on our streams should follow their own discretion in doing so.

At the Spring Creek stream improvement and trout raising project near Bellefonte, Centre County, many willow shoots were planted recently and are expected to increase the effectiveness of comprehensive improvements already made at the site through providing more shore cover.

Linked closely as it is with the stream improvement campaign, the movement now under way to further increase stream cover is expected to be a vital factor in the drive for better fishing.



PHOTO BY M. J. MYERS

WILLOWS ON THE YELLOW BREECHES

"In view of the improvements enumerated," writes Dr. Seylar, "the unquestioned betterment of fishing, the beautifying of every stream bank where willow shoots or limbs can be planted, may we not ask for

the active cooperation of every school, every Boy Scout troop, every organization of outdoor life of whatever kind or nature, and the hearty cooperation of every publication in giving publicity to the matter."

TROUT FEATURE STREAM STOCKING IN DECEMBER

Brook and brown trout were stocked heavily in approved waters throughout the state during December. A total number of 254,645 fish of the various species were released under ideal water conditions. Of this number, 166,230 were brook trout, ranging in length from 6 to 10 inches, 4,000 fingerling brook trout, 68,400 brown trout, 6 to 7 inches, 1,440 bullhead catfish, adults 8 to 9 inches, 8,275 fingerling sunfish, and 6,300 fingerling yellow perch.

The following waters were stocked in the various counties:

Adams—trout, Little Marsh Creek, Toms Creek, Conococheague Creek, Conewago Creek.

Bedford—trout, Three Springs Run, Showers Creek, Beaver Creek, Yellow Creek.

Berks—trout, Moselem Creek, Hay Creek, Indian Creek, Mill Creek, Scott Run, Northkill Creek, Pine Creek.

Blair—trout, Blair Gap Run, Big Fill Run, Van Scoyoc Run, Clover Creek.

Bradford—trout, Schroder Creek, Seeley Creek, South Creek.

Bucks—trout, Cooks Creek, Beaver Run.

Cambria—trout, Duels Run.

Cameron—trout, Wykoff Run, East Branch Hicks Run, Driftwood Branch, Sinnemahoning Portage Creek.

Carbon—trout, Hays Creek, Wild Creek.

Centre—trout, Logan Branch, Little Fishing Creek, Sinking Creek, Pine Creek, Elk Creek, Roaring Run, Penns Creek, West Branch Big Run, White Deer Creek, Six Mile Run, Fields Run, Big Sandy Creek, Penns Creek, Marsh Creek, South Fork Beech Creek, Laurel Run, Spruce Creek, White Deer Creek, Black Moshannon Creek, Spring Creek, Little Moshannon Creek, Penns Creek.

Chester—trout, French Creek, Valley Creek, Birch Run, White Clay Creek.

Clarion—trout, Toms Run.

Clearfield—trout, Montgomery Creek, East Branch Muddy Creek, Anderson Creek, Whiskey Run, Moshannon Creek, Curry Run, Bell Run, Mountain Run, Medix Run, Bigler Run, Sandy Creek, West Branch Montgomery Creek, Lick Run.

Clinton—trout, Long Run, Cedar Run, Cooks Run, Beaverdam Run, Cherry Creek, Rattlesnake Run, Tangascootack Creek, Long Run, Big Fishing Creek, Chatham Run, Big Run, West Branch of Young Womans Creek, Right Branch of Young Womans Creek.

Columbia—trout, Roaring Creek, Fishing Creek, Mugser Run.

Crawford—trout, McLaughlin Run, Nagus Creek, Brannon Run, Mosey Run, Muddy Creek, Sandy Creek, Middle Branch Sugar Creek, Patriek Run, East Branch Muddy Creek, Kelly Run, Thompson Run.

Cumberland—trout, Yellow Breeches Creek, Big Spring, Hogestown Run, Trindle Spring, Mountain Creek.

Dauphin—trout, East Branch Rattling Creek, Rattling Creek, Clarks Creek, South Fork Powells Creek.

Elk—trout, East Branch Clarion River, West Branch Kersey Run, Spring Creek, Driftwood Branch.

Erie—trout, Little Conneauttee Creek, South Branch French Creek.

Forest—trout, West Hickory Creek.

Franklin—trout, Broad Run, Trout Run, Row Run, Conococheague Creek, Trout Run, East Branch Little Antietam Creek.



MILL CREEK, A SULLIVAN COUNTY TROUT STREAM

Fulton—trout, Nine Mile Creek, Brush Creek.

Huntingdon—trout, Little Trough Creek, Laurel Run, Sadler Creek, Nine Mile Run, Spruce Creek, Shavers Creek, East Branch Standing Stone Creek.

Indiana—trout, Laurel Run, South Branch Twolick Creek, Downey Run, Yellow Creek.

Jefferson—trout, Manners Run.

Juniata—trout, Licking Creek, Liberty Valley Run, Willow Run, Horse Valley Run, Horning Run.

Lackawanna—trout, Lehigh River, Gardner Creek.

Lancaster—trout, Big Chickies Creek, Indian Run, Stewarts Run, Wissler Run, McCulley's Run, Rock Run, Donegal Creek, Charles Run, Climers Run, Muddy Run, Hammer Creek; catfish, Coalico Creek.

Lawrence—trout, Taylor Run.

Lebanon—trout, West Branch Hammer Creek, Snitz Creek, Hammer Creek, Indian-

Lycoming Creek, Nippenoise Creek, Loyalsock Creek.

McKean—trout, Potato Creek.

Mercer—trout, Little Neshannock Creek, Mill Creek.

Mifflin—trout, Licking Creek, Treaster Valley Run, McKinley Run, Swift Run, Brookland Run, Haviee Creek, Laurel Run, Lingle Run, Tea Creek, Kishaeoquillas Creek.

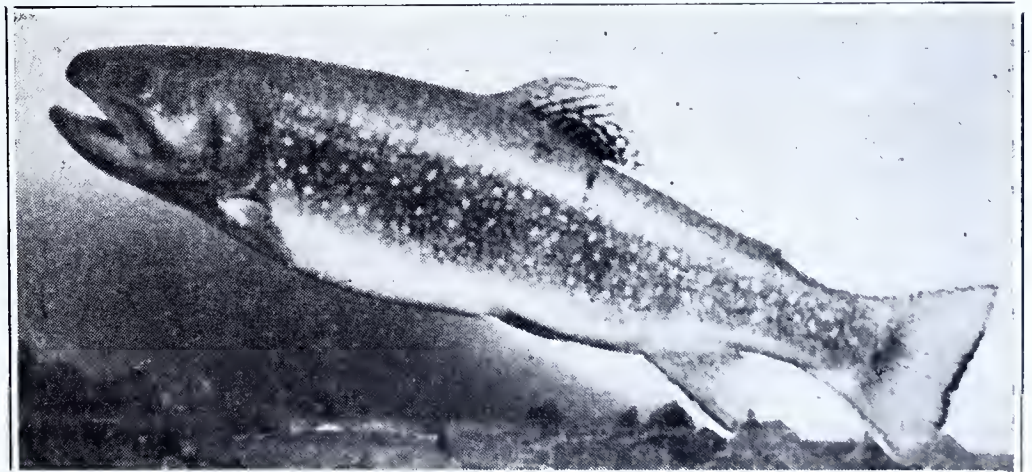
Monroe—trout, Pohopoco Creek, McMichaels Creek, Sambo Creek, Brodheads Creek, Middle Branch Brodheads Creek, Lehigh River.

Montgomery—trout, Mill Creek.

Northampton—trout, Hokendauqua Creek, Bushkill Creek, Martin Creek, Little Bushkill Creek, Little Martin Creek, Monocacy Creek.

Perry—trout, Brown Run, Houstons Run, Horse Valley Run, Laurel Run.

Philadelphia—catfish and sunfish, Chamonix Lake, League Island Lake.



BROOK TROUT FEATURED DECEMBER STOCKING

town Run, Evening Branch or Gold Mine Run.

Lehigh—trout, Trout Run, Little Lehigh River.

Luzerne—trout, Nescopeck Creek, Bear Creek, Wapwallopen Creek, Harvey's Creek, Maple Creek, Huntingdon Creek.

Lycoming—trout, Wallis Run, Fourth Gap Run, Hogland Run, Grays Run, Muncy Creek, Pleasant Stream, Little Muncy Creek, Roaring Branch, White Deer Hole Creek, West Mill Creek, Trout Run, Little Pine Creek.

Potter—trout, West Branch Genesee River, East Fork of First Fork of Sinnemahoning Creek, South Fork of First Fork of Sinnemahoning Creek, Corbet Branch, First Fork Sinnemahoning Creek, Middle Branch of Genesee River, Oswayo Creek, Mill Creek, Kettle Creek, Pine Creek.

Schuylkill—trout, Evening Branch or Gold Mine Run, Little Catawissa Creek; sunfish, Lakewood Dam on Hosensock Creek, Cumbola Dam on the Old Schuylkill Canal, Deer Lake Dam on Pine Creek, Patterson Dam

No. 2; yellow perch, Lakewood Dam on Hosensock Creek, Cumbola Dam on Old Schuylkill Canal, Deer Lake Dam on Pine Creek, Patterson Dam No. 2, Deep Creek, Mahantango Creek, Sweet Arrow Lake, Long Run, Pine Creek, Old Schuylkill Canal Basin, Dock Pond, Patterson Dam No. 3, Patterson Dam No. 1, Old Union Canal, Cats Pond, Sucker Pond.

Snyder—trout, West Branch Mahantango Creek, Swift Run.

Somerset—trout, Negro Glade Run, Brush Run, Laurel Hill Creek, Clear Shade Creek, Wills Creek.

Sullivan—trout, North Branch Mehoopany Creek, Kettle Creek, Muncy Creek.

Tioga—trout, Hills Creek, Kettle Creek, Mill Creek, Pine Creek.

Union—trout, Spring Creek, Rapid Run, White Deer Creek, Laurel Run.

Venango—trout, Middle Branch Sugar Creek, Stewart Run.

Warren—trout, Little Brokenstraw Creek, Jackson Run, Brown Run, Tionesta Creek, West Hickory Creek.

Wayne—trout, West Branch Lackawaxen River.

Westmoreland—trout, South Fork Mill Creek, North Fork Mill Creek, Mill Creek, Tub Mill Run.

York—trout, Leib's Creek, Otter Creek, Fishing Creek.

IZAAK WALTON CHAPTER ACQUIRES CLUB HOUSE

The Philadelphia Chapter No. 2 of the Izaak Walton League of America, has had a goal for the last few years which has been attained: a clubhouse and out-door meeting place.

The Country Club Foundation Committee has completed plans whereby the Philadelphia Chapter No. 2 will share the grounds and attractive clubhouse of The Safety Rod and Gun Club.

The club grounds, which comprise a twenty-acre tract, located at Bustleton Pike and Reading Railroad, the upper end of Bustleton, are equipped with what is considered one of the best trap-shooting outfits in the country.

The Chapter plans to work on reforestation, soil erosion, winter feeding stations, building of rearing ponds, raising of ring-necked pheasants and quail, casting field, an archery set, and a pistol and rifle range. In fact the work is under way.

Among the individuals whose efforts contributed largely to the success of the project are: George Haldane, Chairman of the Country Club Committee; Joseph D. Hiestand, President of the Chapter; Paul V. Rosenbaum, President, and Dr. Glenn S. Everts, Secretary of the Safety Rod and Gun Club.

ANOTHER BIG PIKE

The giant wall-eyed pike or pike perch that caused such a sensation at Lake Wallenpaupack in Pike and Wayne counties last summer apparently maintained their striking habits until the virtual close of the game fish season on November 30.

Casting plug on November 27, A. H. Lauderburn of Hawley, hooked into a mammoth pike. In the struggle that followed, his casting rod was broken, but the important part of it is, he succeeded in landing the fish. It measured 31 inches in length and weighed 10 pounds.



A BITTERN—SHORE-WADING BIRD DESTRUCTIVE TO FISH

YORK WALTONIANS SCHEDULE BANQUET

York Chapter No. 67, Izaak Walton League of America, is sponsoring a county-wide crow shooting contest in order to reduce the huge numbers of crows in the southern counties. They are offering five prizes. Last year in a similar contest it was estimated that some ten thousand crows were bagged. The contest is scheduled to end February 28, 1935.

The York Chapter is very active in conservation activities with members from all over the county. The chapter's banquet scheduled for February 21, 1935, is an annual affair that attracts a large gathering of sportsmen. Prominent speakers, including representatives of the game and fish departments, will attend. Ray Kinsey, O. H. Shepp and W. C. Stevens are the committee in charge.

The chapter, affiliated with the Izaak Walton League for eight years, holds meetings once a month in the local Y. M. C. A. Their activities also include a sportsmen's meet held each summer. The chapter operates a fish nursery, located near Dallastown. Large numbers of fish are distributed throughout the county both from the nursery and in cooperation with the State Board of Fish Commissioners. From its beginning, it has been active in the fight against pollution of streams. The chapter also was active in bringing about the open season created each spring on all species of fish in the pool below the Safe Harbor Dam, where, in the spring run, large numbers of fish are trapped by low waters and heretofore could not be taken without violating the law.

The officers of the organization are D. A. Garver, president, York, Dr. George A. Meyers, vice-president, Dallastown, J. H.

Coffman, secretary-treasurer, York, and D. Everett Moore, Stewart O. Stump, York, and W. W. Sechrist, Dallastown, directors.

CLEARFIELD SPORTSMEN HEAR SETH GORDON

One of the finest rallies in the history of organized sportsmen in Clearfield County was held in the Y. M. C. A. at Clearfield on Wednesday night, January 15. Featuring the big rally, which was attended by more than 300 sportsmen and their wives, was a splendid address by Seth Gordon, president of the American Game Association, Washington, D. C.

In a forceful talk, he described the growth of the Pennsylvania Game system and emphasized the rapid development of fish and game production in this state.

Honor guests of the evening were L. D. Rearick and John Rearick, recently retired keepers of game refuges in Clearfield and Elk Counties. The Rearick brothers retired from the Game Commission work after nearly 15 years of service. Their record was highly praised by W. C. Shaffer, Deputy Executive Secretary of the Commission, who presented them with diplomas at the meeting. Because of illness, Mrs. L. D. Rearick was unable to attend the meeting. In her behalf, a beautiful bouquet of flowers was presented to Mr. Rearick by the Federated Sportsmen's Clubs of Clearfield County.

When caught during the open season, brook and brown trout, smallmouth and largemouth bass may be kept in possession six days after the close of the open season for these species.



BEPKS COUNTY SPORTSMEN WERE ACTIVE IN STREAM IMPROVEMENT LAST YEAR. ABOVE THEY ARE SHOWN BUILDING DAMS AND DEFLECTORS ON THE TULPEHOCKEN. BELOW, LEFT, A DAM ON PINE CREEK AND RIGHT, A DEFLECTOR.

TROUT COVER A KEYNOTE IN STREAM IMPROVEMENT

The ideal trout stream combines three vital factors—food abundance, proper water temperature, and good shelter. Lacking in any one of these essentials, the capacity of a stream to produce trout of maximum number and size is necessarily limited. A brief consideration of these factors shows their relationship to stream improvement.

Food abundance is governed by various factors. Classified as trout food are many forms of aquatic and insect life. The crayfish and cold water species of minnows constitute an important feature in the diet of larger trout. But growing trout, fingerlings, require much more food, tiny forms of aquatic organisms that cling to growth on the stream bed, to brush and rocks. Included in this group is the larvae of insects that have developed in the water; for example, the larvae of the caddis fly. From brush and growth on the shorelines comes another important class of trout food—in-

sects that may drop into the water. Earthworms washed into a stream from the banks also provide forage. Forage and shelter, it is to be observed in this checkup, hinge upon each other.

The water temperature of a trout stream should be low, that is, having a summer temperature range not over 70° or 72° in midsummer. In former issues of the ANGLER, the temperature factor was stressed in improvement work. Governing the temperature range are small spring tributaries and the speed of the current. Deflectors in slower streams serve an admirable purpose by accelerating the current and forcing it to create pools adaptable to trout, while the spring feeders may be easily cleared of muck and brush in a manner that will assure a constant supply of low temperature water. Here again shelter plays its part, for the spring feeders, in as many instances, as possible, should have abundant shade as an aid to low water temperature.

In providing additional trout cover on a stream, the first consideration should be introduction of it at points where it will serve a dual purpose of protection and the creation of additional growth for food. Certain areas of a stream may be without growth of trees and brush on the shores. Planting of willow slips at these locations, and the introduction of additional brush may aid in reclaiming such waters.

The stream bed itself offers an ideal opportunity for introduction of additional shelter. Fallen trees with their branches intact may be placed counter to the current, and firmly staked in place. Drift carried by the current lodges against these branches and forms additional shelter. In line with this increase of cover in the stream itself is the introduction of loosely woven bundles of brush, anchored securely near shore. Brush bundles furnish a breeding place for aquatic organisms and a hiding place for young trout from their natural enemies.

Logs properly placed in shallows and pools



SIGNS LIKE THIS HELP YOUR FISHING

provide good cover for trout. Another idea that has gained headway in improvement of this type is the weighting down of small trees and bushes on the shoreline in such a manner that they will project over the water. The advantages of this system may readily be seen. Overhanging foliage provides a resting place for insects and assures additional shade. Heavy rocks will serve as anchors in this type of improvement.

On any trout stream, the presence of areas too dense to fish is of definite advantage. These areas, with their dense brush and tangles of logs and other cover in the water serve as natural feeders to heavily fished portions of the stream. Trout lurking in inaccessible pools aid in natural restocking at spawning time and dropping down into accessible areas provide additional sport. Densely covered areas also aid in keeping the water temperature at low level, and serve as breeding grounds for much natural forage.

For better trout fishing, consider this vital factor of shelter on our trout streams.

BUCK TAILS MEET

Meeting at the courthouse in Clarion on January 15, more than 200 members and guests of the Clarion County Buck Tail Association enjoyed a fine program.

In addition to regular business, officers were elected for the ensuing year. Those elected to serve for 1935 are Dr. R. L. Bastress, president; Frank Shaffer, 1st vice-president; M. M. Kaufman, 2nd vice-president; James McKloskey, 3rd vice-president; William Keatley, 4th vice-president; R. R. Whitmer, recording secretary and W. R. Elliott, treasurer. Wilbur Alexander, who was appointed secretary at a previous meeting, presided. It was also decided to hold the regular meeting on the tenth of each month in the courthouse.

After the regular meeting Fred Shearrer, district forester, presented George Sheffer with a ten-year service award for fire warden duty.

LAND BIG PERCH

They're catching some mighty fine yellow perch in Thorn Run Dam and Onelda Dam, Butler County, according to Warden J. H. Bergman, of Butler. Newton Loucks, of

Meridian, recently had a varied catch in Thorn Run Dam. It consisted of three 14-inch perch and two 16-inch bass. Onelda Dam, in particular, has been providing exceptional perch catches.

PENN'S CREEK AFFORDS GOOD BASS FISHING

Smallmouth black bass predominate in Penn's Creek. While pickerel, wall-eyed pike, and yellow perch are taken each year, this stream, from Weikert to its point of juncture with the Susquehanna River near Selinsgrove, is preeminently a bass stream. It runs a fairly swift, cool current, cutting its way through rich farming territory and timberland in Union and Snyder counties.

The angler who tries Penn's Creek finds a large number of good pools to test his casting. From mouth to source, the stream

Next Month

Just to serve as a little advance dope for our readers, we are proud to announce the March ANGLER, our annual trout number. Heading the list of articles in March will be a splendid contribution from the pen of Charles M. Wetzel concerning nymphs. Paul L. Swanson will give you the lowdown on "Which Snakes Should Be Killed." There will also be an article on the history of the fly rod. Listed are just three of the highlights in your ANGLER on the eve of the 1935 trout season. We hope you'll like it.

is fifty-nine miles in length. Its upper waters are famous for big brown and brook trout.

Probably outstanding of Penn's Creek deeper waters are the Jolly Pool and Beech Tree Pool near Weikert, the Little Spinning Wheel, near Trail's End, and the Big Spinning Wheel, near Glen Iron.

In many places, the flats and pools are fringed by rushes, while in the lower waters, lily pads and weed beds provide lurking places for pickerel. Excellent fishing is to be had from Kratzerville Dam to the Susquehanna River.

While stone catfish, minnows, helgramites, and crawfish are considered excellent bait, a little fish known locally as "sweet bait" is reported to rank as favorite with anglers who have fished in Penn's Creek for years. "Sweet bait" are to be found under the rocks on the riffles. Crawfish are good lures early in the season, helgramites later.

An abundance of natural food and water vegetation are contributing factors to the prominence of the stream as bass water. A bass weighing one pound taken from the cold current of Penn's Creek is capable of an

amazingly good fight. Good catches are also made on artificial lures—plugs, spinners, and flies.

In the food fish line, suckers, eels, and mullets are plentiful, while in the lower waters, a large number of carp are taken. Sunfish, rock bass, fall fish, and a few yellow perch add variety to the angler's sport.

At many points, fishing water is available over good roads. Wading accounts for nice creels, and some fishing on the dams and larger pools is had from boats.

LAKE ERIE GOLDFISH

Edward D. Mentz, ardent fisherman and secretary of the Erie Bait Casting Club, sends in the following interesting information relative to goldfish in Presque Isle Bay and Misery Bay on Lake Erie.

"We have a species of fish that live in Presque Isle Bay and Misery Bay which I believe is a cross between a German carp and a Japanese goldfish, at least such is the opinion of local fishermen. It has the scales of the carp and the contour of the body is about like that of the carp, as is also the shape of the mouth; but the tail is stringy, like that of a goldfish and the color varies from a gold to silver. The fish will weigh from a pound up to two and one-half or three pounds."

A great catch in Ford's pond, a short distance from Schultzville, was made by John Losenger of West Scranton. Four large-mouth bass, tipping the scales at 19 pounds, comprised the catch. The largest bass weighed 6¼ pounds and measured 24 inches in length, while the smallest weighed 2½ pounds.



A VIEW OF PENNS CREEK

Lancaster County Turtles

By W. STUART CRAMER

SEVERAL years ago a small group of amateur naturalists, of which the writer was one, decided to make a study of the turtles of Lancaster County, Pennsylvania. Although our research was not well planned, this being our first attempt upon a rather neglected subject in that area, some of our findings are, rather interesting. It is unfortunate that more extensive notes were not kept, particularly concerning the young of the species which we studied.

There are at least eleven species of turtles which occur in the State of Pennsylvania, and while we now record ten of them in Lancaster County, two, the Mud Turtle and the Soft-shelled Turtle, are quite rare and have not been seen there for many years. I shall attempt to describe briefly the turtles of Lancaster County and some of their habits.

One of the more common species is the Musk Turtle, or "Stink-Pot." It is quite aquatic and carries on its upper shell, or carapace, a quantity of algae which gives it the appearance of a long-submerged stone. The carapace measures three and three-quarter inches in length, and when the algae is removed, is found to be a dirty brown color. The lower shell, or plastron, is small and does not cover the entire under surface of the body. The yellow stripes on the sides of the large head, and the absence of a nail or horny tip on the tail help to distinguish this species from the Mud Turtle. Young specimens of the Musk Turtle were found along the grassy edges of ponds; adults were taken in baited traps set in stagnant pools.

An interesting species is the Spotted Turtle, which is small, usually almost black with small round yellow spots appearing on the smooth carapace. The plastron is dark with indistinct patches of a lighter shade, and adult specimens have a yellow or orange mark behind each eye. We found it in small streams and ponds and took many specimens in swampy places. I have never seen it in as large a river as the Susquehanna, nor have I been fortunate enough to take the eggs or the young.

The Wood Turtle, or "Red-leg" as it is called by many people, is most common along the Susquehanna River, but is found in small streams as well. The islands in the river near Washington Boro before the backwater of the Safe Harbor Dam covered them, were inhabited to quite an extent by this turtle, it then being possible to collect as many as forty individuals on one island in an afternoon. The Wood Turtle can be recognized by its rough shell, in adults about seven inches long, and its red legs and reddish under surface of the neck. The plastron is yellow blotched with black.

Muhlenberg's Turtle, one of the more rare and least often seen species of the state, occurs so far as I know only in swamps and bogs fed by springs or small streams. The four inch carapace may be rough like that of the Wood Turtle, or fairly smooth and in color is dark brown with or without an obscure pattern. The best mark of identification is the large orange patch on each side of the head. There are but a few places in

Lancaster County where Muhlenberg's Turtle may be found, but we were successful in collecting the eggs, young and adults of this species.

One of our most common species, the Painted turtle, which is sometimes wrongly called the "Stink-pot," occurs in the Susquehanna River, small streams and ponds and stagnant pools. I have seen it in swamps such as are inhabited by Muhlenberg's Turtle and have found the young along marshy edges of lakes and still bodies of water. The upper shell is quite flat, of a dull olive or brownish hue, and the legs and neck bear stripes of red and yellow. It is a small species, the shell of an adult measuring about five inches. There may be a black blotch in the very middle of the lower shell. This blotch, if present, is prominent in the young but fades to obscurity in the adult. The turtle probably derives its name from the red and yellow markings of the marginal shields which cover the edge of the upper shell. I have observed female turtles laying their eggs on the banks of small streams. The eggs are deposited in a small hole or depression formed by the female for this purpose. They are then covered over and left to incubate in the warm damp soil. When first born young turtles have what is known as an egg tooth, which is really a sharp bony protuberance on the upper jaw used to cut the egg so that the turtle may emerge. It is lost a short time after the turtle hatches.

The Map Turtle, a large species with a

rather flat carapace measuring ten to twelve inches, occurs in goodly numbers along the Susquehanna River. Its favorite spot for sleeping during the day is a large rock from which it can drop or a slippery bank down which it can slide into the water. It is often taken by fishermen with hook and line but is seldom found in a place where it is easily caught without traps, except while the female is laying her eggs. I have always known it as a wary species. Its name is derived from the fact that there are numerous interwoven fine yellow lines on the dull brownish shell which are supposed to create an appearance somewhat like a map. The neck and legs are striped with greenish yellow lines. The young were taken from small pools on the river islands and from old canals along the shore.

Probably one of the best known turtles in Lancaster County is the Box Turtle. It can always be identified by the hinged plastron and high carapace, and is the only turtle which we have that lives almost entirely on land. The eggs I have found on hillsides just under the surface of the soil and sometimes quite near the top of the hill. The young possess a keel or ridge along the back and there may be three or four light spots on this keel and along the sides of the carapace.

I have purposely omitted the Snapping Turtle because I feel that it has by this time been well discussed by other authors and should be fairly familiar to everyone.



A WOOD TERRAPIN OR RED-LEG

PHOTO BY LAMAR MUMBAR



HERE ^A_N^D THERE IN ANGLERDOM



QUENTIN BAKER, SCRANTON, WITH THREE BROOK TROUT, 15 $\frac{1}{4}$ TO 16 $\frac{1}{4}$ INCHES, TAKEN IN MASTOPE CREEK, WAYNE COUNTY

Prior to the flood in September, Penn's Creek in Union County, provided some fine catches of smallmouth bass, according to Warden Art Snyder of Mifflinburg. One pool above New Berlin is known to have yielded 120 fine bass during the season. Thirty-nine bass were taken from this pool in three days, two of them each measuring 19 inches. Tom Heiter, Mifflinburg barber, caught 33 bass from this pool during the season, while his total catch made in Penn's Creek during the season was 45.

Real progress was made by members of the Great Swamp Fish and Game Association in killing watersnakes during 1934, according to H. H. Reinhart of Quakertown. A check-up at one of the meetings of the Association revealed that 152 watersnakes had been killed by the members.

Trying his luck in the iron company dam at Parksburg during September, George Gordon, 15, landed a wall-eyed pike measuring 28 inches in length and weighing 6 $\frac{3}{4}$ pounds, according to Warden D. K. Broadbelt of Pocopson.

One of the finest smallmouth bass to be taken from Maiden Creek at Virginsville in Berks County last season was caught by William Bitting of Reading. Bitting's catch, reported to Warden W. E. Wounderly by Special Warden Francis Sharadin, measured 18 $\frac{1}{2}$ inches and weighed 4 pounds, 12 ounces.

"Saving Fish" should be the heading of the following report from W. E. Briggs, warden at Waterford, Erie County. He writes: "Last year the water was unusually low during April, the time the muskellunge

SNAKE DIET FOR THIS PICKEREL

Every now and then, it seems, those long slender fish noted for their voracity, chain pickerel, may vary their diet to include reptiles. And to back this belief, the ANGLER prints the following letter from Charles Ernst of Mehoopany:

"My nephew, Rev. John W. Schmitthener, is very fond of fishing. During his summer vacation he takes great pleasure in angling for bullheads and pickerel in a little pond located at Bellasylva, Wyoming County.

"One day he succeeded in landing a fine pickerel, which measured 16 inches in length; but this was not at all unusual, as John was always a lucky fisherman.

"After dressing the fish, curiosity impelled him to cut the stomach open, for the pickerel seemed well fed. To the amazement of us all, a snake was neatly arranged therein, the reptile measuring 18 inches in length. The snake was two inches longer than the pickerel which had swallowed it."

ordinarily travel up small tributary streams to spawn. The following number and species of various fish were transferred from such waters under a special permit: muskellunge, 408; suckers, 115; sunfish, (estimated) 300; bullheads (estimated) 100, and rock bass, 32. These fish were all taken from tributaries of Conneaut Creek and backwaters of the same stream. The muskies were transferred to Lake LeBoeuf and Edinboro Lake while the other species were released in the main stream."

Clarence Miller of Mifflinburg caught some fine smallmouths from Penn's Creek, two of them touching the 18-inch mark.

The Swatara Creek near Middletown yielded a catch of 13 fine suckers to Ezra Earley and Henry Peipher of Palmyra on October 4.

Speaking of big smallmouth bass, it is interesting to note some of the catches reported by Myron Shoemaker, warden at Laceyville. Harry Lung of Canton caught one measuring 18 inches; Gene Means, Towanda, one 18 inches; Earl Johnson, Wyalusing, one 16 inches, and Frank Schulz, Towanda, two bass, one 18 and one 20 inches, also 8 pike from 15 to 20 inches. All of these catches were made on live bait.

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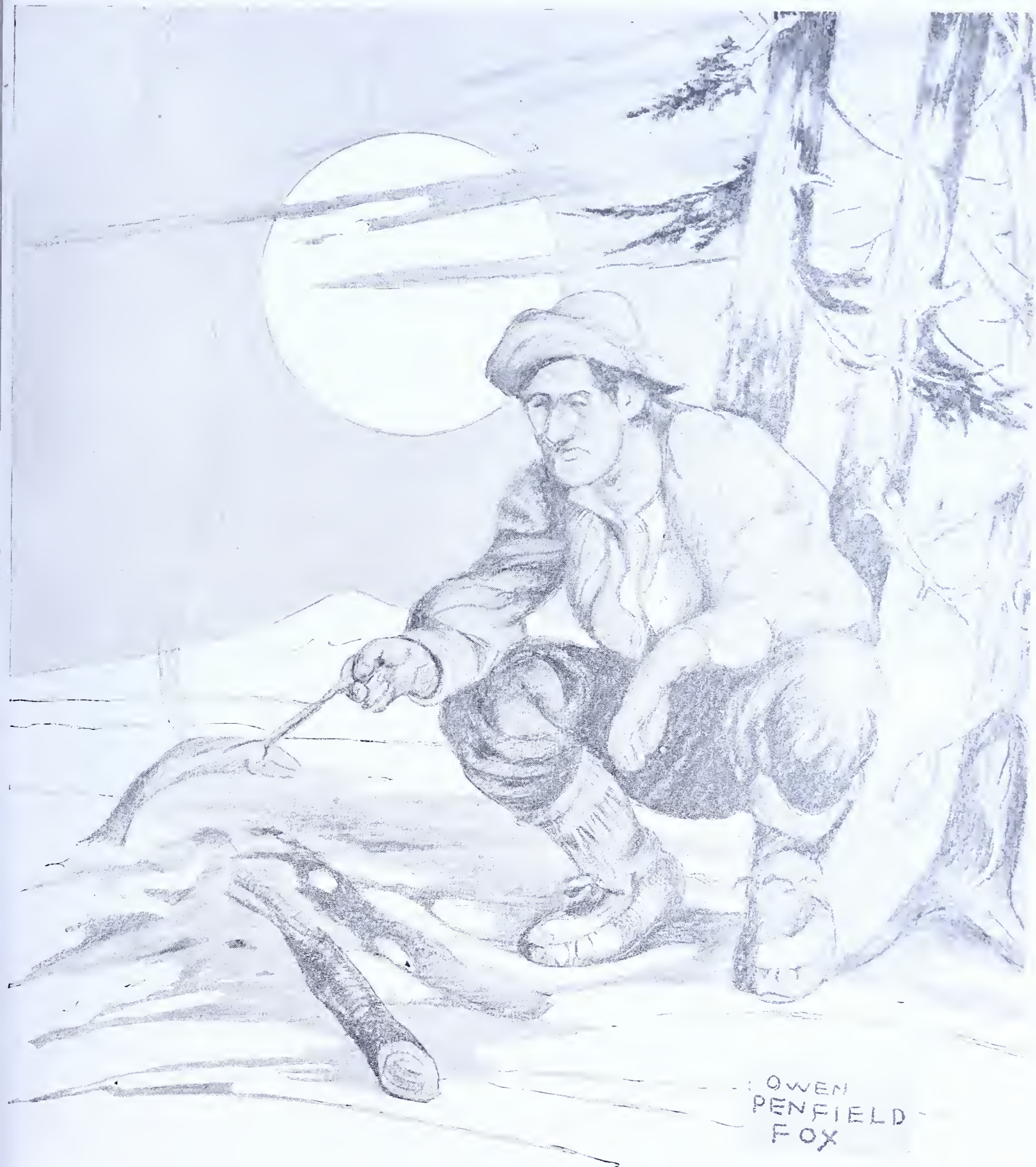
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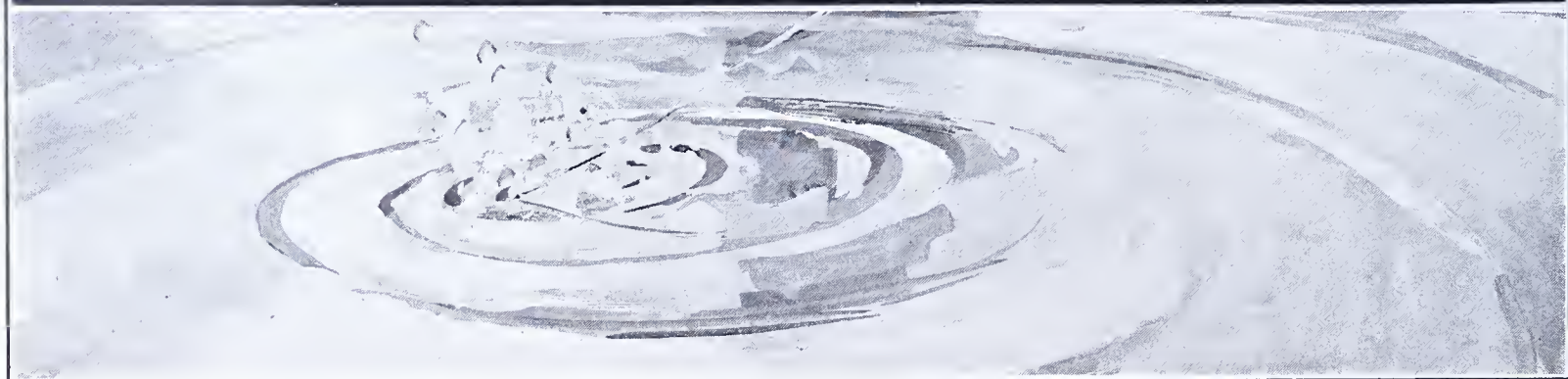
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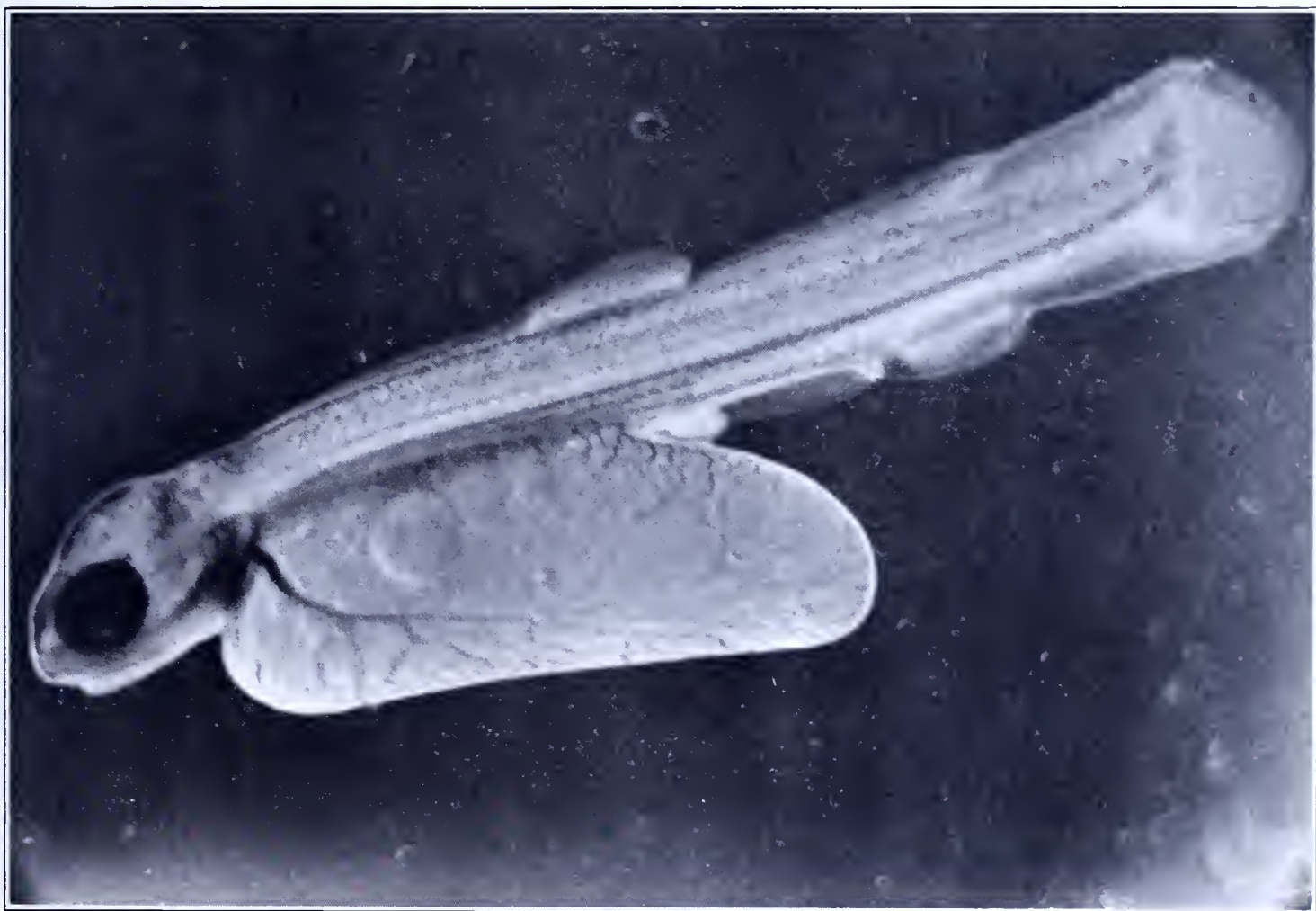
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DAY-OLD RAINBOW TROUT
(HIGHLY MAGNIFIED)

VOL. 4
No. 3

OFFICIAL PUBLICATION
BOARD OF FISH COMMISSIONERS

MARCH
1935

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PUBLICATION

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ALEX P. SWEIGART, *Editor*
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EDITORIAL

Our Stocking Program

When our present program of fish stocking was inaugurated in Pennsylvania, namely, the stocking of fishing waters through our own personnel and equipment, it became necessary to have a better knowledge of conditions then existing on these waters. In order to secure this necessary data, the Board set up a stream survey in 1931. At the time, Pennsylvania's streams were greatly affected by drought and many heretofor splendid trout streams were so low that they could not be effectively stocked with large fish.

The stream survey program has covered a period of four years and as a result, a complete chart has been drawn up, classifying every stream and lake in the state. In addition, excellent data was made available relative to polluted waters in Pennsylvania. This means that we no longer need carry on a stocking program in a slipshod manner, as, through the stream survey system, every body of fishing water receives its quota of fish of the species best adapted to it.

The present program of fish stocking necessitated building up of a fleet of 39 trucks, but the splendid response of our sportsmen to this plan has assured us that the purchase of this equipment was a sound investment.

We recognize in a balanced stocking program, that is—the stocking of our streams and lakes not only with game fish but with the coarse fishes, such as suckers and catfish, and forage fish such as minnows, an essential feature of our work. In other words, while thousands of our fishermen devote their time astream to fishing for trout and bass, many less fortunately situated, insofar as available trout waters are concerned, derive pleasure in fishing for suckers and other food fish. I have touched but briefly on this phase of the Board's work in passing.

Pennsylvania's trout production pro-



PHOTO BY DR. B. D. HETRICK

gram, owing to the success that marked it, is my chief topic in this editorial.

I sincerely believe that adoption of a plan for the stocking of trout of legal size and over has been a determining factor in the trout fishing afforded by our streams in recent years. Twenty-five years ago for instance, when many of our trout stream watersheds were stripped of larger timber, the young second-growth forests had not yet matured to a stage sufficient to retard rapid run-off of moisture. Not only were many of our streams practically destroyed as suitable spawning grounds for trout, but sediment settling on the bottom in a number of instances made some waters unfit for larger trout.

Obviously, to provide fishing, we were forced to meet existing conditions. Each year, our streams were restocked with trout above legal size, and results of this plan were soon apparent through increased catches. Even during the drought years, which I believe must take rank as one of the most destructive eras in modern times to fish life, we were able to provide trout fishing for our sportsmen.

But once again conditions have changed, at least in some sections of Pennsylvania. Today, a splendid growth of young timber stands on many of the trout stream watersheds. Each year it is becoming more effective as a vast natural reservoir, and in consequence, our stream survey has revealed, trout feeder streams have staged a remarkable come-back.

In consequence, we adopted last year a program for the stocking of suitable trout feeder streams with fingerling trout from our hatcheries. This distribution of over 2,000,000 fingerling trout did not interfere in any way with the program for stocking legal size fish, and is purely an auxiliary measure for improving our trout fishing. Under present conditions, we are hopeful that the fingerling planting will prove of real benefit to smaller trout waters, and the larger streams into which they drain. Sportsmen in various sections of Pennsylvania aided in stocking the fingerlings, meeting our trucks at designated points and in turn placing the young trout in suitable waters, many of which it has not been feasible to stock with the larger fish. This phase in our trout stocking program is a recent development, and whether it is effective or not must be decided during the next few years.

Insofar as stocking our warmer waters with game fish is concerned, I believe that the plan to stock fingerling bass, that is, bass ranging in size from three to seven inches, has proved very effective. Our anglers last year reported splendid catches of bass on many Pennsylvania waters. The black bass is definitely staging a real comeback in the Keystone State.

Commissioner of Fisheries.

Trout Stream Nymphs

By CHAS. M. WETZEL

MOST of us, I think, have experienced the time when the air was crowded with May flies, the trout were rising furiously, with here and there a tail fin showing above the water, and yet, regardless of what fly we tied on, all our efforts in catching them proved futile. Such a situation taxes one's patience to the utmost, for everyone likes to catch fish or at least have rises. We try to console ourselves with the thought that our artificial, while a fair imitation, is only one fly among the myriads that are on the water and the trout haven't found it. But is that the case?

Repeated experiences, such as the above, have convinced me that, in a majority of cases, the trout are feeding on the nymphs which are floating near the surface—so near the top that one naturally believes, from the character of the rise, the trout are either taking the sub-imagoes or the imagoes. It is difficult at times to distinguish whether the trout are feeding on the winged insects or the nymphs. One of the surest indications, though not an infallible one, can be judged from the rise.

Whenever a bulge appears on the water, followed by a glimpse of a tail fin above the surface, as if the trout was standing on its head, depend on it the fish are taking nymphs. At such times the trout take up a position near the top of the water and as the nymphs—usually in flushes—rise to the surface to effect their metamorphosis

to the winged stage, they are caught in the ascent. This position is also assumed by the trout, especially in shallow water, as they root around the stream bottom trying to dislodge nymphs and other larva from the stones.

Another good indication that trout are nymphing can be obtained from the streaks that follow in the wake of the fish as they swirl about feeding avidly on the floating pupae, which are poised just under the surface waiting for the nymphal skin to burst open. This is more noticeable on the quiet, placid pools, and is at times a scene of great activity, for the trout feed ravenously on the practically quiescent nymph, as if knowing the sub-imago will soon emerge and fly away.

So much has been written of late concerning artificial nymphs that I hesitate to add anything more to a subject that has been so adequately treated by others. But the editor would have it so and through fear that he might let up on all this entertaining fish news we are privileged to read each month, I began this manuscript. Most of my other articles have dwelt mainly on the finer points of nymph fishing—points which one naturally presumes were acquired through a study of the natural prototype; and yet so little having been written of the actual nymph itself, one wonders after concluding such an article whether the creature in the subaqueous stage be-

haves similar to the method followed in fishing the artificial, as advocated by some of our foremost angling authorities.

It is not the object of this article to suggest or advise methods of fishing the artificial; rather it is my intention to set forth a few facts concerning the natural nymph together with a method of dressing the artificial, so that readers of the *ANGLER* will be able to form their own creations and present them to the trout in a natural manner.

I have been using nymphs for a number of years and have caught some trout on them but frankly this type of fishing has never appealed to me so much as it should. Undoubtedly, however, a fertile field is open to the angling fraternity and considerable originality can be exercised by the fishermen who tie their own flies; for without a question of doubt, these nymphs comprise the trout's principal diet. I have a habit of making a post mortem examination of the stomach contents of the trout I kill and numerous autopsies bear out the above statement; for in addition to the usual conglomeration of flies, snails, beetles, crabs, etcetera, one can always find nymphs—sometimes still alive and wriggling.

In the following discussion, all underwater insects will be called nymphs, regardless of whether they are in the larvae or pupae stages. This seems to be the term in current use and we will adopt it.

First we will take the nymphs of the May flies or Ephemeroidea; and here it is necessary to review some of the facts previously written concerning these insects. We will remember that the flies in the winged state exist in two stages,—i. e., the sub-imago and the imago. The flies in these two stages are commonly known among fishermen as duns and spinners. The drakes, which are peculiar in being indigenous to certain streams, fall under this same category only being larger in size.

The eggs, after being deposited by the spinner or imago, sink to the bottom and shortly hatch into larvae. During this period of growth the insect moults many times and immediately after each moult, the body expands in size and changes in form, always progressing towards the perfect insect or imago. These instars or periods between successive moults in which no visible body changes occur are said to number as high as twenty.

Some of the May fly nymphs are of the digging variety and bury themselves in the stream bed; others can be seen swimming and crawling among the grass and weeds; while still others (the flat shaped nymphs) spend their under water life hiding under the rocks. The species probably most preyed upon by the trout are the ones who wander freely around the stream beds, for the other two varieties are seldom exposed, except when they ascend to the surface to effect their transformation to the first winged stage—i. e., the sub-imago. Sometimes this is accomplished by climbing to the surface on some support.

The nymph's head is always upstream and it moves in short quick dashes, affected



KETTLE CREEK TROUT

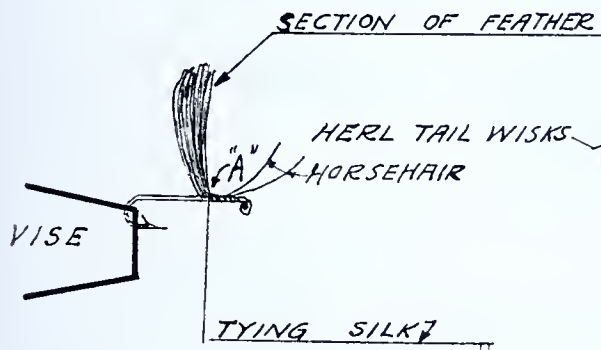
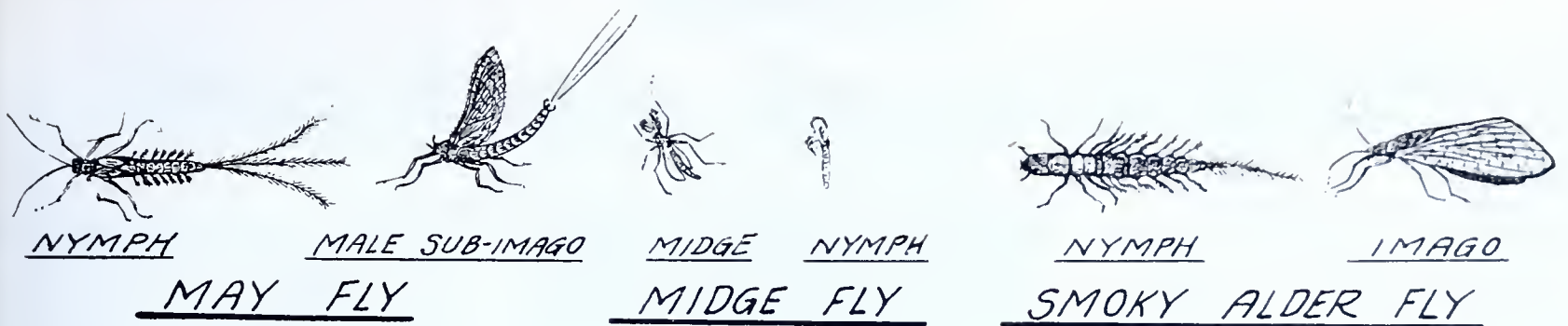


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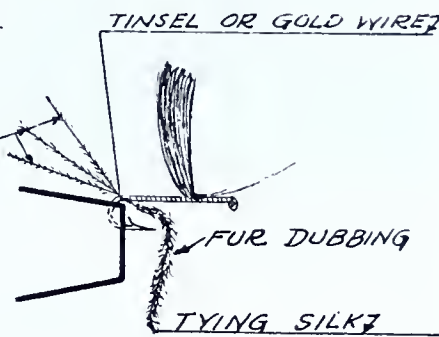


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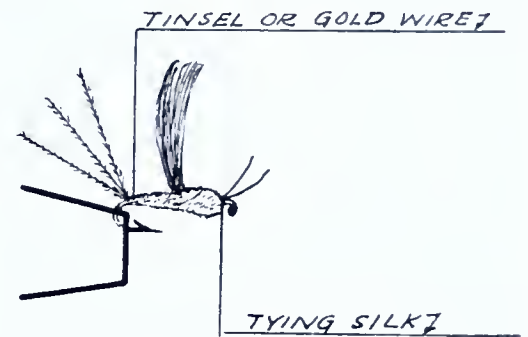


FIG. 3.

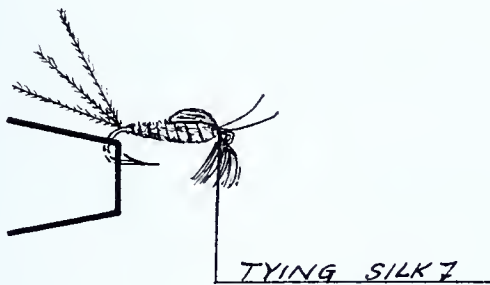


FIG. 4.

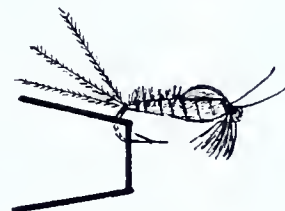


FIG. 5.

by strokes of its tail fin and gill covers moved synchronously. These seven pair of gills are arranged symmetrically about the body of the nymph near the sides. Their purpose is to enable the insect to breathe as it is strictly an aquatic creature and unlike the helgramite soon dies if removed from its native habitat.

After successive moults the insect arrives at the pupa stage. Wings now begin to form on the back of the thorax and these are neatly folded and packed in pear shaped sacks. As the time approaches to transform into the winged fly, the nymph rises to the surface and swallows air which is retained by the valve-like structure of the alimentary canal. The mouth parts now are sealed shut and it partakes of no food for the remainder of its life. Soon, while floating near the surface, the nymphal skin, under great pressure, splits open and in a few seconds the sub-imago has emerged and flown away. This slit appears in the nymphal skin on the back or dorsal side of the insect. First the sub-imago pushes its thorax through this slit, then it draws out its head; next it struggles until its legs are disengaged; and finally it pulls up its abdomen, until it has extricated its body wings and tail whisks clear of the nymphal skin. The entire operation only consumes a few seconds and oftentimes the fly rests a moment on the cast skin—waiting for its wings to dry before flying away.

The sub-imago can be recognized by its dull coloration and by the presence of small

hair around the wing borders. The males are distinguished by the presence of a pair of claspers, shaped like califers on the upperside of the abdomen at the hinder end. These claspers are not present in the females.

I have gone into the history of the May fly nymph more or less in detail for two reasons. First, they are commonly found on most trout streams and secondly, they probably lend themselves to imitation better than any other nymphs.

MIDGE FLY NYMPHS

Probably the trout prey on the nymph of the midge fly more than any other under-water insect; and its importance as fish food is greatly underestimated by most fly fishermen. The male adult fly, resembling a mosquito (and which I described in last October's issue) is conspicuous by its plumose feelers or antennae.

The larva spins a cylindrical cocoon about itself and attaches it to the stones, usually in fairly deep water. Some of the larvae are yellow, others a brilliant red, which latter color is plainly visible through the transparent case. The red larvae are known among some anglers as blood worms, though differing considerably from the blood worm we ordinarily use in salt water fishing. The pupae rise to the surface and hang there motionless in a vertical position, prior to assuming the winged stage.

The floating spent imagines are a familiar sight on the water, for the wind often collects them in thick scum-like patches; but

the larvae are a little more difficult to find as they rapidly take on the color of the adjacent surroundings, due to the mud and silt which accumulates on the cocoons. The adult fly which appears late in the season during low water loses the red color so characteristic of the larva and appears in a coat of buff or light brown.

In damp weather and immediately after a rain when the natural insect is most prevalent, I have had good success with the midge, and its nymph has also accounted for a few unsophisticated trout.

Due to its small slim size, a delicate touch is required to fashion this nymph. The finest tying silk obtainable should be used on such small flies and Pearsalls gossamer silk No. 0000 is undoubtedly the best.

Nymphs of the Stone Flies and Caddis Flies

Nymphs of the stone flies are seldom exposed to the trout, but there is no reason why anyone so inclined cannot construct passing imitations. The nymphs of the caddis flies—those small worms which roam about freely over the stream beds, dragging their lumbering cases along—have been imitated, but apparently not successfully. Some of the caddis worms leave and return to their cases but this species seems rare.

The ones I sketched in the October issue were found in the upper reaches of Swift Run in the Snyder-Middlesworth State Park, near Troxelville—one of the few remaining stands of virgin timber in the state. This was during the month of July and, of some twenty cases found, only six were oc-

cupied—the others having already been transformed into flies. The pupa stage, when the insect swims to the surface, does not readily lend itself to representation, and obviously an imitation of the worm within its case is an absurdity—yet we know the trout eat them.

SMOKY ALDER FLY NYMPHS

Another nymph found in our streams is the nymph of the smoky alder fly. It falls under the same order (Neuroptera) as the helgramite and resembles it in many ways, only being considerably smaller in size. It is approximately an inch in length and is often mistaken for a drake nymph, due to the same seven pairs of gill covers on its body. It may be distinguished from the May fly nymph by the possession of only one tail whisk, while the May flies mostly have three, sometimes two.

The alder nymphs spend their lives in the sand and gravel, a few inches below the stream bed, probably to avoid their worst enemy, the helgramite. They are carnivorous insects and feed actively on caddis worms, May fly nymphs, etcetera, occasionally turning cannibal and eating each other. They pupate on the ground near the banks of the streams and the female imago deposits her eggs in places like the undersides of old bridges, so that the nymphs, when hatched, fall directly into the water. The adult fly is an awkward insect and though it frequents the water, it appears only on the surface as a casualty. It is black in color while the nymph is brown with a yellowish head and thorax.

The alder is one of our oldest artificial patterns and originated in Europe. It has only been recently that I have identified its prototype, known as *Sialis infumata*, the smoky alder fly. The European alder, *Sialis lutaria*, (the artificial which some claim is the drake fly that Dame Juliana Berners described in her "Treatyse of Fysshynge wyth an Angle"), agrees in most particulars with *Sialis infumata*, according to Mr. K. C. Davis, one of our entomologists. Whether one can believe that the fly was imitated at such an early date, (1496)—a few hundred years before the insect was classified—remains doubtful, although not improbable. Certainly Dame Juliana's description of the artificial fly, (body of black wool, lapped about with black silk and wings of the mail of the black drake with a black head) agrees very closely with this insect.

You will notice that I did not suggest a cure-all remedy in the shape of artificial nymphs for the trying case illustrated in the opening paragraphs of this article. To be perfectly honest—I couldn't. My invariable practice at such times is to try nymphs first, then wet flies, then dry flies, and if all prove unsuccessful, I move up-stream to a spot where the fish are not cavorting in such fiendish glee and where the steady business-like rise of a lone trout proves infinitely more alluring.

Frankly as I see it, the artificial nymph has been over-exploited. If one were to believe all the glowing accounts published on the fish-taking qualities of the artificial, it would require no appreciable stretch of the imagination to visualize our streams in a short time being completely denuded of trout; especially by some unscrupulous fisherman, whose greatest ambition in life

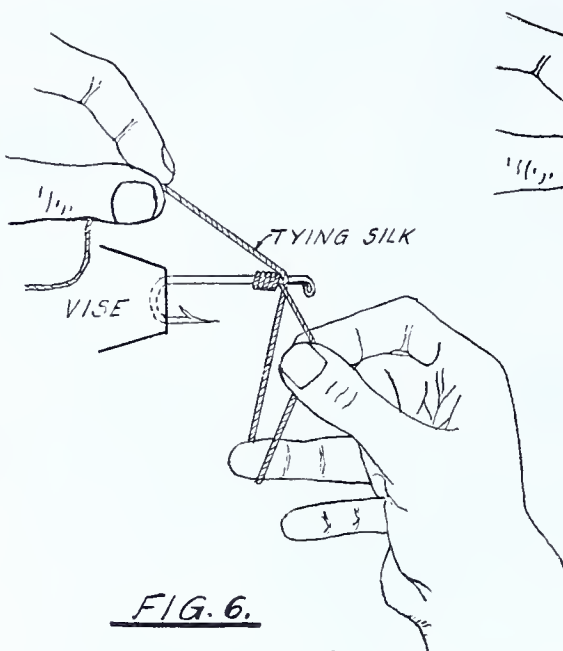


FIG. 6.

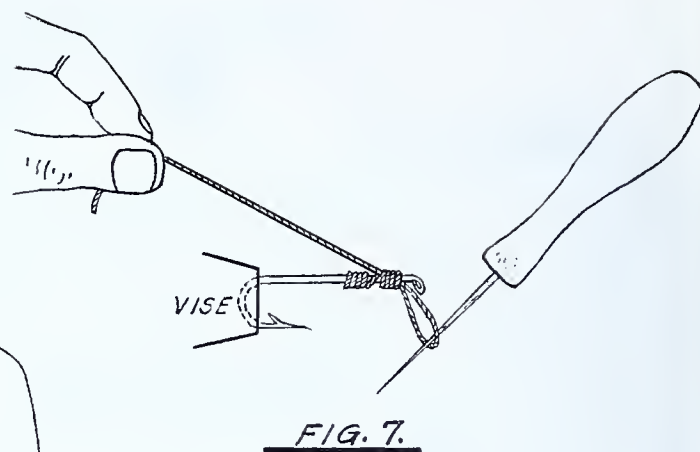


FIG. 7.

THE WHIP FINISH

is to beat their own and other people's records. Artificial nymphs will catch trout, but whether they will eventually prove more successful than wet flies remains a much disputed question. My opinion, though probably not a weighty one, is that they will not.

As I mentioned in a former issue of the ANGLER, I have tied a great variety of nymphs, some with bodies reversed on the hook; others of various shapes and forms, but the one pictured in the January number has probably proved the more successful. As an imitation, it is conspicuous by its absence of wing cases and sparseness of hackle, neither of which appear detrimental to the fly's effectiveness. Most of the commercial tied patterns deviate from the natural prototype in having the wing cases equal to the abdomen in length. In the May fly nymph we are about to construct, these wing cases or pads will be run slightly farther back than the thorax, in keeping with the natural insect.

All nymphs are more or less transparent, glistening, and radiate light; and the best body material I have yet found for their imitation, is the fur of such amphibious animals as the mink, muskrat, beaver and seal. Such fur is translucent, has a silvery glint and is, I believe, superior to any other material, including quill. If silk is used in making the body, a sample should first be immersed in water to procure the right shade as all silk turns to a darker hue after it becomes saturated. Like their progenitors, the nymphs are clothed in a great variety of colors and occasionally blending must be resorted to, in order to obtain the requisite shade.

And now to fashioning the artificial. No attempt will be made to copy any particular May fly nymph. The construction of the fly is more important. Later when on the streams, sketches or descriptions of the natural insects, noting their colors, will help to spend many a fascinating evening hour constructing the artificial.

Place the hook in the vise and with well-waxed tying silk commence winding towards bend of hook, binding down its own end and two short pieces of horse hair. From

a feather, cut out a section about one-fourth of an inch in width and approximately three-fourths of an inch long. With the tying silk, fasten the tip of this feather at point "A," Fig. 1, letting the fibres project vertically as shown.

Continue with tying silk towards bend of hook and there attach tail wisks, and ribbing tinsel or gold wire in place with a few turns of the tying silk. Peacock herl taken near the root is an ideal material for tail wisks.

Clip off a piece of fur, roll it in hand until it becomes felted, then twist it over the tying silk, see Fig. 2. Now with the fur twisted on the tying silk, commence winding towards eye of hook, adding more fur when necessary and enlarging the body at the thorax as shown. With body now formed, clip hackle pliers to tying silk, letting it hang. The fly will now present the appearance of Fig. 3.

Grasp the tip of the ribbing tinsel or gold wire and wind spirally around the body, forming the segments and reversing the direction from which the body dubbing was wound on. Fasten tinsel in place near eye of hook with a few turns of the tying silk, allowing tension caused by hackle pliers to hold it in place. Grasp the butt of feather, fold it back over the thorax and fasten with a few turns of the tying silk, meanwhile working butts of feather fibres (which serve as hackle) underneath the hook as shown in Fig. 4. This feather folded over the thorax is supposed to represent the partially developed wings of the insect. Finally apply the whip finish.

The whip finish, or finishing off knot at the head of the fly, I have shown in Figs. 6 and 7. Among some fly tiers, this knot is a jealously guarded secret and in most angling literature, its tying has been so shrouded in mystery that attempts to grasp its intricacies have proved futile. It is with the hope that I have improved upon these past vague descriptions, that I submit the following explanation. The hook and tying silk in the sketches I have exaggerated, to make the idea clear.

Take the position shown in Fig. 6 and
(Turn to Page 15)

Which Snakes Should be Killed?

By PAUL L. SWANSON

MORE and more people are beginning to see snakes in their proper light, and to realize that it is not good policy to destroy every snake that is observed, regardless of species. Therefore it is desirable to have a knowledge of which snakes are economically beneficial and which are not.

The basis on which the value of a snake is to be considered is mainly its feeding habits. If it destroys more animals that are pests to mankind than it does those which are useful, it must be thought beneficial. The fact that an ever increasing number of people get enjoyment out of studying nature should not be overlooked. Some of the smaller species of snakes are of much interest to such people, and when their status of usefulness is in doubt, they should be spared for that reason if no other.

To well informed people it is distasteful to hear someone brag about the large blacksnakes which they may have killed. While such a feat may sound heroic to a few who have an abnormal fear of snakes, there is not much credit in it from any point of view when one considers how practically defenseless the creatures are. They must rely almost entirely on their ability to beat a hasty retreat when man comes into sight. Unfortunate is the snake which is caught napping. I have picked up large pilot blacksnakes from where they have been resting without their making the slightest attempt at biting. Some do not even try to escape. This is not always the case, as occasionally one will bite, and perhaps leave a series of scratches from its sharp teeth which, however, cause no trouble if kept free from infection.

The black racer, fortunately for itself, is not of such a trusting disposition. It speedily glides to safety, or if cornered, puts up such a lively show of temper that the average person leaves it alone unless a weapon of good length is conveniently at hand.



BANDED WATERSNAKE, SEVERAL DAYS BEFORE BEARING 40 YOUNG

The feeding habits of these two blacksnakes are quite a bit alike. There is some argument as to whether their good habits outweigh the bad. It is true that they will sometimes eat birds or bird's eggs if they can catch or find them. Both species are oviparous (egg-laying) and I suspect that many of the reported cases of finding bird's eggs in black snakes are due to the fact that the snakes were soon to lay their own eggs. These eggs are about two inches long and shaped similarly to those of birds, and might easily be mistaken for bird's eggs. I have never had a captive specimen eat any kind of an egg. Herpetologists agree that a very large proportion of the food of the black snakes consists of rodents, chiefly rats and mice. If a young rabbit occasionally falls victim to a black snake, it must be remembered that the reptile probably eats far more than enough mice to compensate for the digression. The racer not infrequently turns cannibal and devours other snakes, usually smaller species which are not distinctly beneficial. The pilot blacksnake has a very wide reputation for killing rattlesnakes but I cannot vouch for that, as they have always been very tolerant of each other in my collection.

The evidence indicates that these two species do much more good than harm, and consequently they should not be killed.

The common garter snake is probably more frequently permitted to escape with a whole skin because its smaller size makes a rather negligible nucleus about which to weave a tale of prowess. Many of those who waged war on watersnakes last summer have probably hesitated to kill the garter snake. Garter snakes feed principally on worms, toads, frogs, salamanders and similar cold-blooded animals. Captive garter snakes of mine are actually more proficient in catching tadpoles and larval salamanders out of a basin of water than are banded watersnakes in the same cage. Garter snakes are fond of fish in captivity and perhaps consume them in their natural state in suitable localities. Worms are beneficial to soil and soil conditions. Toads



DEKAY'S OR BROWN SNAKE. ADULT SPECIMEN

are an asset because of their insect-eating habits. Frogs are valued as food; the larger ones for us, the smaller ones for fish. Though I would dislike to see this interesting serpent killed off to the point of extinction (which is extremely unlikely due to their widespread distribution and their very large numbers of young) it is perhaps advisable to thin out their numbers.

Watersnakes are inimical to our interests. Repulsive in appearance, vicious in attitude, voracious in appetite, it would be difficult to find any redeeming feature about them. Their fondness for fish is well known. Due to campaigns endorsed by the ANGLER thousands of watersnakes were killed last summer. It should be known that these and most other remarks concerning the "watersnake" refer to the banded, or common watersnake. The other commonly found watersnake of Pennsylvania, the queen snake or striped watersnake is a much less repulsive creature than its near relative, but its feeding habits probably warrant its not being distinguished from the banded

(Turn to Page 15)



COMMON GARTER SNAKE EATING TREE TOAD



A MASTER OF THE FLY ROD, KEN REID, IN ACTION

Saga of the Split Bamboo

The first of a series of articles concerning the origin of fishing tackle

SYMBOL of the great sport of fly-fishing, the slender, finely-balanced split bamboo fly rod is a cherished possession of the modern angler. There is something almost alive in this light-weight creation that has added such immeasurable charm to the fishing art. Fragile in appearance, frequently only from four to five ounces in weight, it is, in the hands of a skilful fly fisherman, a marvelous device. For instance, (and we hope you'll pardon the repetition) let us picture Bill Percival of Matamoras, Pike county, on that day last summer as he fought his record-breaking 9 pound 7 ounce brown trout to a finish in the fast water of the Lackawaxen. Mentally, we can almost vision the pliant, quivering arch of that 4-ounce rod he was using. For one hour, our records tell us, that wisp of split bamboo withstood the brunt of a mammoth trout's lunges to break away and came through a winner. Incidents like this tell the saga of the split bamboo more graphically than any words.

Just as in many forms of the angling pastime, the origin of this popular fishing device will probably always be a fertile field for argument. There are those who will con-

tend that it is an American invention, but our earliest records show it to have been made first in England.

First of American split bamboos, it is said, was that made in 1848 by Mr. Phillippi, a gunmaker in Easton. This rod was made of split bamboo glued together in three sections. It has been stressed, however, that Mr. Phillippi never made a complete rod of split bamboo, instead only a joint and tip to a three-piece rod, the butt being of ash, joint and tip in three sections.

To E. A. Green of Newark, N. J., is generally conceded the honor of having made the first complete split bamboo rod in America. It is claimed that in 1860, Mr. Green glued up several of these rods for the trade. Of interest to many Pennsylvania fishermen is the fact that Thaddeus Norris of Philadelphia, whose fishing knowledge was widely heralded at the time and who was one of the foremost figures on introduction of the black bass to Pennsylvania waters, was mentioned in connection with this invention but never claimed the honor. The rods manufactured by Green were in four sections. In 1863 or 1864, Mr. Murphy of Newark also turned out 4-piece bamboo

rods for the market, while the first rods constructed in six sections were placed on the market by H. L. Leonard of Bangor, Me., in about 1870. Soon after this, 6-piece rods were made by Dr. A. H. Fowler. Mr. Murphy was also said to have claimed credit for the first 6-piece rod.

Now, turning back again to the origin of the split bamboo, let us consider the remarks of Lawrence D. Alexander, who commented on the history of the fly rod in the '80's. He based his deductions concerning its origin on the first edition of the "Handbook of Angling" by Ephemer (Edward Fitzgibbon) published in London in 1847. The following account appearing in that publication and written by a "Mr. Little of 15 Fetter Lane, rod-maker to His Royal Highness, Prince Albert" concerns the making of top and middle joints of a salmon rod.

"They are to be made from the stoutest piece of bamboo cane, called 'jungle' and brought from India. The pieces should be large and straight, so that you can rend them well through knots and all. Each joint should consist of three-vent pieces, split like the foot of a portable garden chair, and afterward glued together, knot opposite to

knot, or imperfect grain opposite to imperfect grain, but the best part opposite to that which may be knotty or imperfect, so as to equalize defectiveness and goodness. The natural badness of the cane you counteract by art, and none save a clever workman can do it. The butt of a salmon rod should be made of plank ash or ground ash, though many good judges prefer willow or red deal, as being much lighter, and where lightness is required the whole rod may be made of cane. The few makers that have as yet attempted solid cane or glued-up rods have generally placed the bark or hardest part of the cane inside in gluing and then reduced the joints down on the outside to the usual tapering shape. Give me, however, the workman who glues the splices with the bark outside, and then gives his rod a true and correct action, allowing the three different barks to be seen visibly on the outside after he has rounded the whole.

"If the pieces are skillfully glued together they will require no reducing, except at the corners, to bring the rod from the three-square to the round shape. I am prepared to prove that there are not more than three men in London capable of making, perfectly, rods of solid cane, rent glued and then correctly finished with the bark lying on the outside."

Quoting again from the "Hand-book of Angling":

"In my opinion, rods made entirely of lancewood are the worst; and those made entirely of rent and glued jungle cane are the best. They must be most carefully fashioned, and no maker can turn them out without charging a high price. I am also of the opinion that they will last longer than any other sort of rod, and are far less liable to warping. I have a high opinion of their elasticity, and Mr. Bowness, fishing-tackle maker of No. 12 Bellyard, Temple Bar, showed me once a trout fly-rod, made in this, my favorite way, that had been for many years in use and was still straight as a wand. I never saw a better single-handed rod."

Apparently, about this time, there was a turning away from rods made entirely of rent cane or other rent material and the trend was to rods composed in part of this substance. Wrote William Mitchell, an American authority on the fly-rod in the '80's:

"The first record I have been able to find of the construction of the split bamboo rod is in Ephemer's (Edward Fitzgibbon) 'Hand-book of Angling,' second edition, page 255, London, 1848, where he recommends a tip for a salmon rod to be made of bamboo cane rent longitudinally into three wedge-shaped pieces, then glued together and reduced to the proper tapering thickness, ringed and whipped with unusual care and neatness: 'I have changed my opinion with respect to rods made entirely of rent cane or any other wood rent. Their defects will always more than counter-balance their merits'."

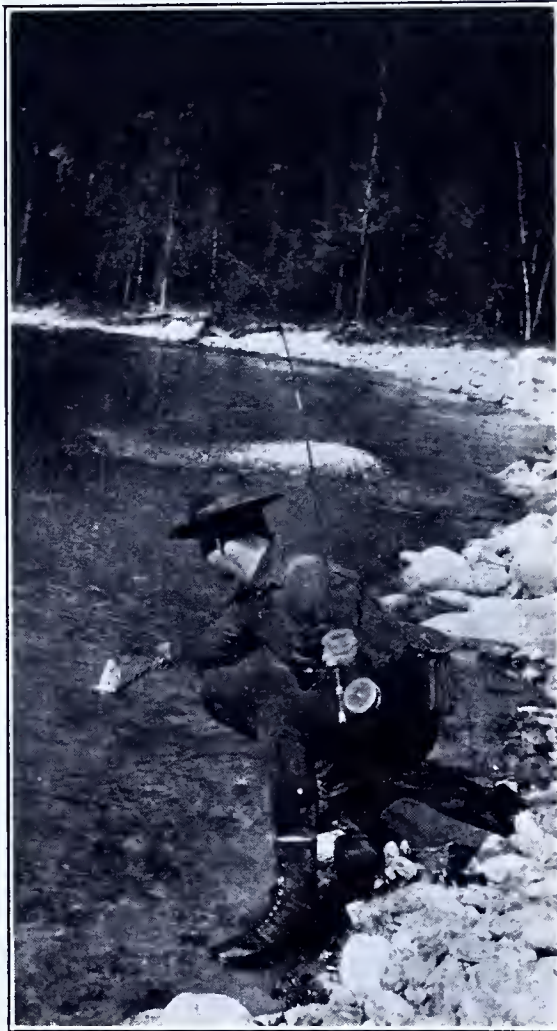
Mitchell continued:

"I now quote from Blacker's *Fly Making and Angling*, London, 1855, page 82:"

"The rent and glued-up bamboo cane rods, which I turn out to the greatest perfection, are very valuable, as they are very light and powerful, and throw the line with great facility."

"The first edition of this book, published in 1842, I have also not been able to consult. The author was a practical rod-maker, and made the split bamboo rod I refer to in the beginning of this article. (Note: The rod mentioned was made to order for James Stevens, a veteran angler of Hoboken, N. J., in 1852, according to Mitchell).

"In 1856 there was published in London an edition of Walton's *Complete Angler*, edited by Edward Jesse, with notes and papers on fishing tackle by the publisher, Henry G. Bohn. On page 325, in the article on rods, he says: 'The split or glued-up rod is difficult to make well, and very expensive.



SCORING WITH THE SPLIT BAMBOO

It is made of three pieces of split cane, which some say should have the bark inside, some outside, nicely rounded."

"In January, 1857, the third edition of *The Practical Angler* by W. C. Stewart, was published in Edinburgh. On page 33, Mr. Stewart, in speaking of rods, says:

"The strength of bamboo lies in the skin, and in order to turn this to the best account, rod makers lay two or three strips together so as to form a complete skin all around. Rods are sometimes made entirely of bamboo, but they possess no advantage over those in common use to compensate for the additional expense, a twelve-foot rod of this material costing 3 pounds to 4 pounds."

"At that time, bamboo rods were all made in three sections, with the enamel on the outside. I know that Mr. Wilkinson says the rods made by Alfred and Sons were put together with the enamel on the inside;

but I think this must be a mistake, unless he means that the enamel was on one side of the longitudinal section extending from the apex to the base of the triangle, and when glued is from center to circumference. But put the outside of the bamboo on the side of the triangle or apex, then the enamel is all gone, no matter in what number of sections the rod be made.

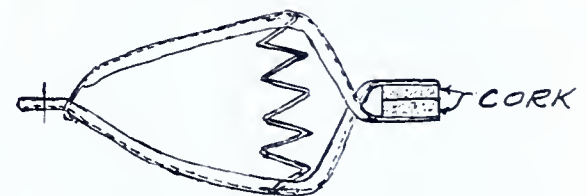
"Calcutta bamboo—which is the bamboo for making rods, is one of the most useful and important of the grass family, and consists of a culm or cylinder (except at the nodes or joints, which are about ten to fifteen inches apart) and a solid at the nodes, with a projection on the outside of one-fiftieth to one-thirtieth of an inch all around, except at the axil, where the branches grow on alternate sides. This projection has to be taken off in making the rod; then going through the thickness of the enamel from five to eight times, for the space of from one to two inches at each node, of which there are three in each of the six sections (which is the best number of sections from which a split bamboo rod can be made). These nodes being the weakest spot in the bamboo, in gluing up the sections they are never put on a line with one another, but one is moved up, say, two inches; the next down two inches, so as to make six less weak spots in the circumference of the joint and eighteen in each joint."

From the foregoing discussion of the split bamboo, the amazing evolution which has taken place in development of the modern fly rod is evident. No longer is the bamboo fly rod a luxury, but instead, a reliable rod for fishing of this type today is well within the reach of the average fisherman's pocket-book.

FLY TIERS, ATTENTION

Chas. M. Wetzel, whose great articles on trout flies native to Pennsylvania waters and fly tying the ANGLER has been privileged to present to its readers, remarks concerning a gadget for use in fly tying received from Dr. B. D. Hetrick of Butler:

"An inexpensive and novel gadget re-



RADIO CLAMP

ceived from Dr. B. D. Hetrick, Secretary of the Butler County Sportsmen's Association, is pictured above. Can be used either as a hackle pliers or, but we'll let Dr. Hetrick tell about it.

"Made from a small radio clamp, a couple of small pieces of cork gasket and a five garnet finishing disc, which you may beg from your dentist, or use fine sand paper instead. Also place one under your vise jaws, about three inches below, to act as a third hand for holding silk taut while selecting fly tying material."

"It's a fine kink, Doctor—so good, that with your permission, I am passing it along to the rest of the anglers who tie their own."

KNOW YOUR TROUT

ARISE to fly, whether the silvery, red and mottled green flash of a brook trout, the scintillating pale blue and silver of a rainbow, or the golden surge of a brown trout is thrill supreme for the angler. All three are splendid game fishes, meriting in every respect the high esteem in which they are held by our Pennsylvania fishermen.

The following descriptions and accompanying pictures of the three species of trout found in our state, it is hoped, will serve to aid the average fisherman in more readily identifying the trout he catches during the 1935 season.

THE BROOK TROUT

A swift mountain stream, cascading into dark pools, swirling beneath the roots of giant spruce or hemlock, cold as the snows of winter—a meadow stream, heading in deep-seated springs, cutting its channels beneath overhanging banks—these waters of Pennsylvania are natural haunts of the charr or brook trout. Not only in coloration, vivid though it is, does the brook trout derive its title “most beautiful of game fishes.” There is grace, a symmetry, in this denizen of the brooks that stamps it swift and game. Nature has decreed that a great part of its life shall be spent head to the current, and that its markings shall blend with stream environment. In the first stage of a brook trout's life the elements are an important factor. October and November find the adult fish migrating to the headwaters, their dorsal fins on many shallow riffles protruding above the surface. After spawning has taken place, that is, after the eggs deposited by the female on some tiny gravel bar have been fertilized by the male trout, the fish return to the main stream. Under natural conditions in our streams, the time required for hatching may vary from 120 to 210 days. Under ideal conditions at the Fish Commission's hatcheries, the period of incubation in the hatching troughs is from forty to ninety days, depending upon the temperature of the water. Dependent upon size and age, a female brook trout will produce from 250 to 2000 eggs.

The brook trout or speckled trout (*Salvelinus fontinalis*) is one of the most beautiful, active, and widely distributed of the American trouts. It belongs to that group of trouts known as charrs, characterized by the presence of round crimson spots on the sides of the body. Other members of this class are the saibling or charr (*Salvelinus alpinus*) of Europe and (*Salvelinus stagnalis*) of Greenland; the red charr (*Salvelinus Marstoni*) of eastern Canada; the Sunapee trout (*Salvelinus aureolus*) found in parts of New Hampshire, Maine, and Vermont; the blueback trout (*Salvelinus oquassa*) of the Rangeley Lakes in Maine, and Dolly Varden, red-spotted or bull trout (*Salvelinus bairdii*) of the Pacific States and Alaska. The lake trout (*Cristinomer namaycush*) also belong to this group.

The general form of the brook trout's body varies considerably, sometimes being elongated and sometimes rather short, but the usual depth is about one-fourth or one-fifth of the length. The head is large and blunt, and is contained four and one-half

times in the body length. The large terminal mouth is provided with teeth on the jaws, tongue, and palate bones, and also with a small patch on the vomer, or front part of the roof of the mouth. The eye is placed high in the head; its diameter is about one-sixth of the length of the head. The gillrakers on the first arch number about 17, of which 11 are on the lower arm. The scales are very small and numerous; about 230 are in the lengthwise series and 35 above and 35 below the lateral line. The dorsal and anal rays are 10 and 9, respectively. The tail is square or slightly lunate in the adult; forked in the young.

There is considerable variation in the color of this trout, dependent on local conditions, sex, and age. The head, back, and sides of the body, dorsal, and caudal fins are of a grayish or greenish color; the back, head, dorsal, and base of caudal are mottled with dark green or black. Along the middle of the side are numerous round, light-red spots surrounded by whitish or light-bluish

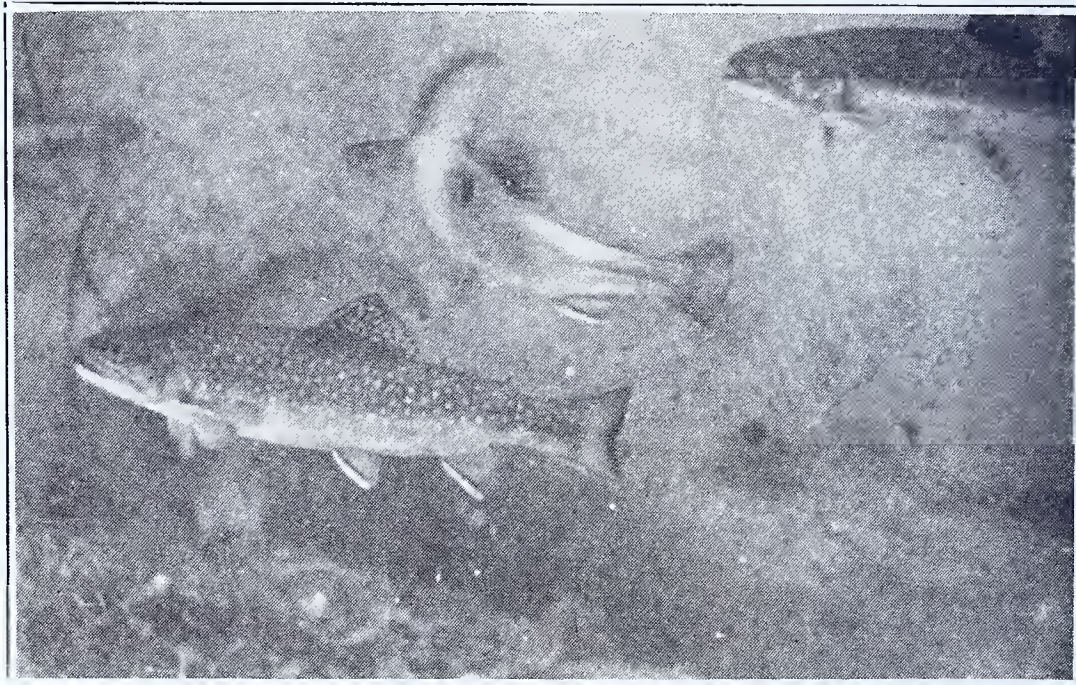
conditions of environment may be described, in general, as follows:

Slender, light-colored, and silvery in lakes, ponds and swift streams that are clear and sandy, or in parts of other bodies of water where such conditions obtain. Stout and dark-colored in lakes or ponds or localities of lakes or ponds having muddy bottoms and considerable vegetable growth and particularly water discolored by vegetable stain. The same may be said of streams, and it may be added that the swifter the flow of water where the trout occurs the more slender it is likely to be.

BROWN TROUT

The brown trout, introduced from Europe in 1883, has endeared itself to Pennsylvania fishermen by its sturdy fighting qualities and adaptability to many of our streams. It rises readily to fly and is a wary feeder.

In body, the brown trout is comparatively short and stout. The greatest depth in its body is contained about four times in its length, discounting the caudal, or tail fin.



BROOK TROUT

circular areas. The lower fins are dusky, with a pale or cream-colored anterior border bounded by a black streak; remainder of fin often red in breeding males. The brook trout may be distinguished from the other charrs by the dark-brown or black marblings on the back and the general absence of spots on the back.

The parr marks, which are always present in young trouts and salmons, are often found in large brook trout. These marks, which in the brook trout are about eight in number, are large, dark, vertical blotches or bars extending along the sides.

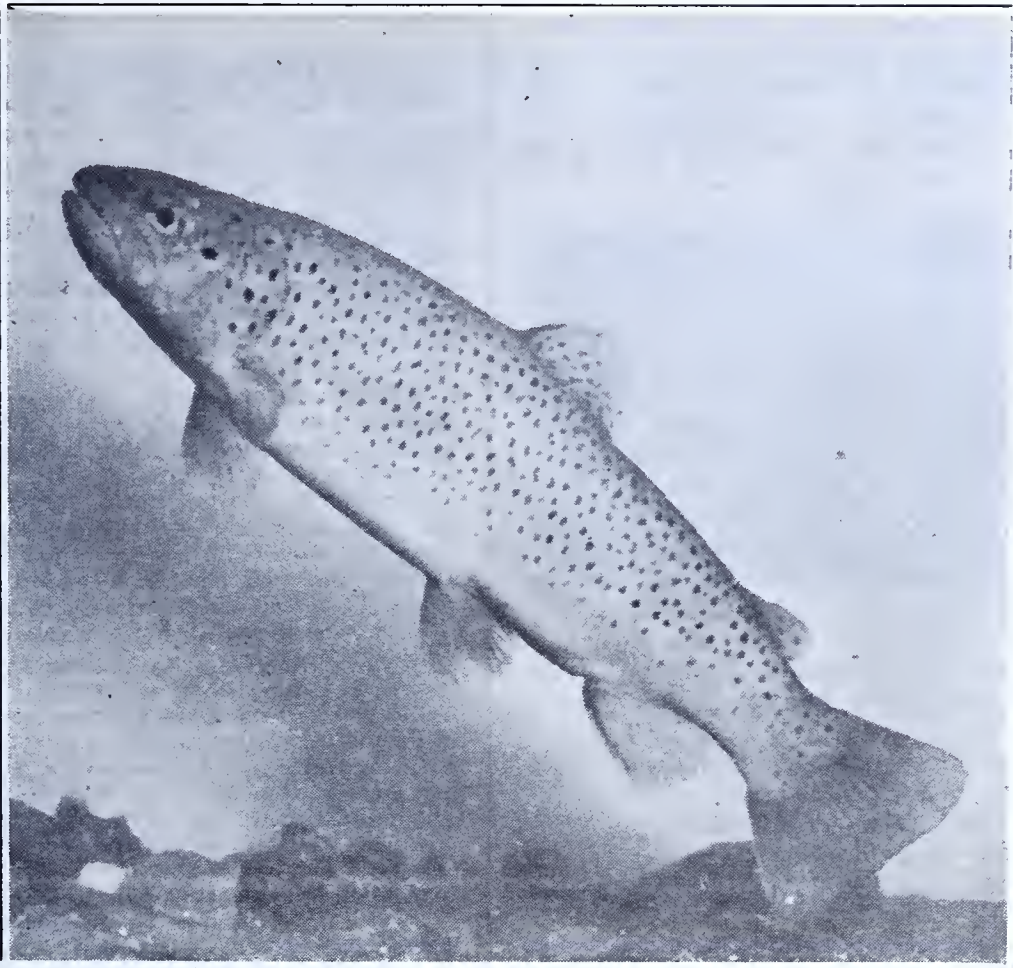
The brook trout exhibits such a variation in color under the varying conditions of sex, age, size, and locality, that it has been given many local names by fishermen under the impression that it was a distinct species. This variation is a protection provided by nature which permits the fish to change its color and markings rapidly when passing from one environment to another. The appearance of brook trout under various con-

The range between the anal fin (fin behind the vent) and caudal fin equals two-fifths of the length of the head. Without taking into consideration the caudal fin, the head of an adult brown trout is about one-quarter of its total length. In diameter, the eye is about one-fifth of the length of the head, and slightly shorter than the length of the snout.

The dorsal or back fin is located a trifle closer to the tip of the snout than it is to the root of the tail. The distance from the eye to the end of the opercle or gill cover is equalled by the longest ray of the dorsal fin. Located under the posterior part of the dorsal fin is the ventral fin, which is equal in length to about one-half the length of the head.

The adipose fin, a fleshy fin-like projection behind the dorsal fin is located over the end of the anal base; it is long and expanded at the end.

The tail of a young brown trout is slightly forked or notched at the tip; in trout ten



BROWN TROUT

inches or more in length, it is nearly square. In length, the pectoral or breast is nearly one-sixth of the total length without the caudal fin.

The jaws of the adult male brown trout are pronounced, and, in the instance of very old fish, frequently hooked. The upper jaw extends to the rear margin of the eye. Triangular in shape, the vomer (front part of the roof of the mouth) has a crosswise series of teeth. On the shaft of the bone are two alternating series of strong teeth.

Head, body, dorsal fin, and adipose fin are marked with numerous red and black spots. Circular, and sometimes X-shaped, the black spots frequently have a pale border. On the front of the dorsal and anal fins, and the outer portion of the ventral fin, a yellowish margin is usually to be observed. Few black spots are to be found beneath the lateral line on the brown trout. Food and locality are determining factors in the body color, which is brownish or brownish black.

THE RAINBOW TROUT

The rainbow trout is a black spotted species in which the characteristic marking is a rainbow stripe along the lateral line. In immature fish, which would normally include those up to 10 or 11 inches in length, this rainbow stripe is not present. The markings on the small rainbow are dark vertical parr markings along the sides with delicate pink shading between. Likewise, the immature fish have a marked fork in their tails and a comparatively blunt and rounded nose and prominent eyes quite unlike the mature specimens with their well shaped bodies and almost square tails.

The rainbow is a lover of fast water. He prefers streams of good size where the current is heavy and the bed of the stream obstructed by boulders which alternately form rapids and deep pools. Where he is

found in streams that also contain brook trout and brown trout, the larger rainbows will frequent the swiftest currents, provided they have sufficient depth. They do not, ordinarily, show good results when planted in small streams or those where the current is slow or the beds wide and shallow. Occasionally where slow streams flow into a lake or reservoir, the rainbow will thrive by spending a part of the year, usually during the winter, in the lake. They are more migratory than either the brook trout or the brown trout and unless big water that is unpolluted is available to them, the re-



RAINBOW TROUT

sults from stocking are apt to be disappointing.

Unlike the brook trout and the brown trout, the rainbow spawns in the spring and streams in which they predominate should not be fished in April.

As a game fish, the rainbow is second to none of the trout found in Pennsylvania. He rises well to the artificial fly, both wet and dry, and after the hook is set, he frequently leaps repeatedly high above the water and has remarkable endurance. One habit that is very disconcerting to the fisherman is his frequent custom of turning at the end of a long run and making a bee-line for the feet of the angler with such speed that it is next to impossible to recover the line fast enough to avoid slack.

While the rainbow trout is second to none as a game fish amongst the fresh water species, his application to Pennsylvania streams is not as wide as that of the brown trout. His nomadic habits make the results from plantings very much of a gamble, and quite often those stocked in a certain stream may later turn up in another stream miles away, necessitating the fish traveling through some of our larger bass waters to reach the second stream. For instance, occasionally a large rainbow is caught in the Allegheny River and it seems almost certain that at times they migrate through this river.

The rainbow trout is native only to the waters of western America from the crest of the Sierras and Cascades ranges to the Pacific Ocean. There are several different species of the parent form, *Salmo Irideus*, including the golden trout in the vicinity of Mount Whitney and southern California, and the McCloud River rainbow, *Salmo Shasta*—the rainbow of the fish culturists, and the one that has been stocked widely, not only in the United States but in many foreign countries in both hemispheres. Notably in New Zealand these introduced rainbows have attained an average size considerably greater than their parents in the native habitat. The largest rainbow reported on rod and line in the United States was 22½ pounds. While this is, of course, exceptional, fish of from 2 to 6 pounds are not at all uncommon in many of the waters of the Pacific states and many of the rivers of the Rocky Mountain region where they have been introduced.

MANY WATERSNAKES KILLED ON QUAKAKE

Fred E. Haegle, Hazleton sportsman, reports a successful campaign conducted by boys under his direction on Quakake creek last summer. A grand total of more than 150 snakes were killed, and six of the boys participating were eligible for medals issued by the Fish Commission, each having killed ten or more snakes on the occasion.

TROUT VARIES DIET

One of those giant brown trout for which Bald Eagle Creek is famous upset the angling calculations of Game Protector Tom Mosier, Bellefonte, in a startling way last season, according to Fish Warden George Cross, Renovo, who was an eye-witness to the incident.

Mosier and Cross were patrolling the Bald Eagle, when they observed a mammoth brown trout rising persistently. Tom, who is an expert fly fisherman, carefully timed his approach to the scene of activity. But he didn't reckon on a half-grown robin.

Alarmed as the fisherman approached its perch, the young bird started to fly across the stream. It managed to get half-way, then fell to the surface. There was a great swirl of golden brown and the robin disappeared into the maw of the brown trout. Its latest prey apparently satisfied the big fellow, for it evinced no more surface activity that afternoon.

TESTIMONIAL DINNER FOR ADOLF MULLER

At their 40th annual banquet held in Norristown on February 2, members of the Montgomery County Fish, Game and Forestry Association joined state conservation leaders in paying a glowing tribute to Honorable Adolf Muller, retiring president of the Board of Game Commissioners, for his untiring efforts during 12 years in game conservation work.

Prominent in the group of leaders who attended the banquet was Hon. J. Hansell French, Secretary of Agriculture and former president of the Montgomery County Fish, Game and Forestry Association, who is keenly interested in Pennsylvania conservation.

"I want to correct the impression among some that Adolf Muller was forced to resign," Secretary French said. "Governor Earle would have gladly continued him on the commission and was surprised when I informed him of Adolf's request to be relieved of his duties some time ago."

With those lauding the Norristonian whose conservation efforts have placed Pennsylvania in the forefront of the nation was Nicholas Biddle, of Abington, who has been appointed by Governor Earle to the Board of Game Commissioners. Mr Muller resigned from the Commission February 1.

"Adolf Muller has striven conscientiously and honestly for the sportsmen of this state," Major Biddle told the sportsmen as he added his praise to that spoken by other distinguished speakers at the testimonial affair.

Judge Harold G. Knight, president of the association, presided as toastmaster. He introduced the guests of honor and speakers and added his own words of appreciation for the guest of honor.

At the conclusion of the speaking program, Mr. Muller spoke briefly, offering his heartfelt thanks to the association and his friends who had so ably demonstrated their sincere regard for him personally and for the efforts he had made in his chosen work.

Major Biddle drew a round of applause when he told the sportsmen it was the purpose of Governor Earle to keep politics out of the Game Commission.

"The Governor is one of the finest sportsmen I have ever known," he added.

A member of the Association who spoke of Adolf Muller's great help to the organization and greater influence in the state was Burd P. Evans, Trappe, vice-president of the county sportsmen's group.

Grover C. Ladner, president of the State Federation of Sportsmen and deputy attorney general of Pennsylvania generously praised the guest of honor as did E. W. Nicholson, president of the Pennsylvania Fish and Game Association, and member of the Board of Fish Commissioners.

JANUARY STOCKING

Brook and brown trout, legal size and over, again featured stream stocking during January from the Fish Commission's hatcheries. Of 63,860 fish planted, 23,300 were brook trout averaging 7 inches in length. Brown trout released ranged in size from 6 to 7 inches and numbered 28,800. A total number of 11,760 bullhead catfish,

ranging in size from 4 to 8 inches, were also released.

Following were streams stocked in the various counties:

Berks—trout, Mill Creek, Cold Run.

Bucks—trout, Tinicum Creek.

Cameron—trout, Upper Jerry Run, Hunts Run, Portage Creek, Sinnemahoning Portage Creek, Driftwood Branch.

Centre—trout, Mountain Branch, Lick Run, Penns Creek.

Chester—trout, Middle Branch White Clay Creek, White Clay Creek.

Clarion—trout, Paint Creek; catfish, Clarion River Power Dam on Clarion River.

Clearfield—trout, Laurel Run.

Clinton—trout, Kettle Creek, Big Fishing Creek, Baker Run, Trout Run, Lick Run.

Crawford—bass, French Creek.

Cumberland—trout, Mountain Creek, Le-tort Spring, Yellow Breeches Creek.

Dauphin—trout, Manada Creek.

Elk—trout, Trout Run, Boggy Run, Laurel Run.

Foresl—trout, Spring Creek, Coon Creek.

Huntingdon—trout, Spruce Creek.

Jefferson—trout, Callen Run.

Juniata—trout, Licking Creek.

Luzerne—trout, Phillips Creek, Lehigh River.

Lycoming—trout, Trout Run, Grays Run.

Mifflin—trout, Musser Run, Long Meadow Run.

Monroe—trout, Pohopoco Creek, Toby-hanna Creek, Pensyl Creek, Kettle Creek, Brodheads Creek.

Northampton—trout, Bushkill Creek.

Potter—trout, Kettle Creek.

Schuylkill—trout, West Branch Fishing Creek, Wolf Creek, Neifert Creek.

Sullivan—trout, Hogland Branch, Pigeon Creek, Lewis Creek.

Tioga—trout, Tioga River, Asaph Run.

"VERSATILITY"

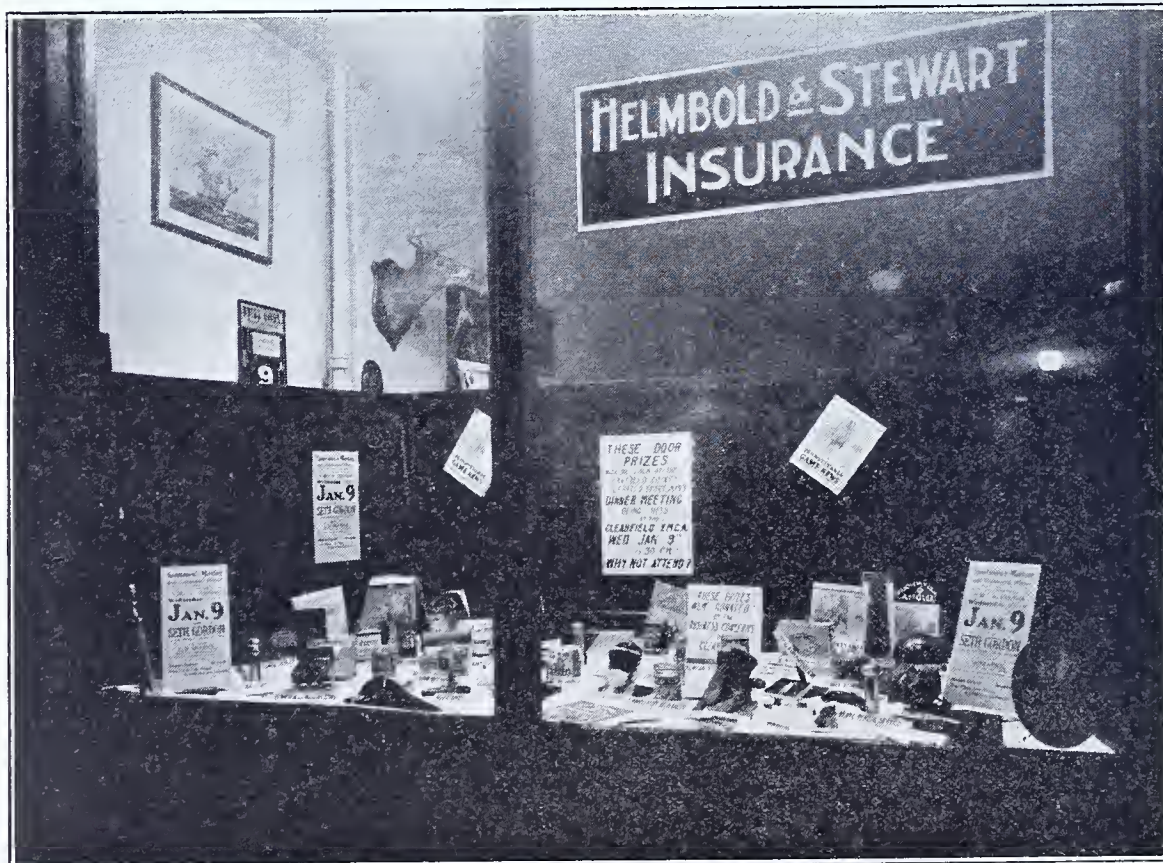
While Joseph Mosser, Allentown manufacturer, does not have "Versatility" for a middle name, an experience he had while fishing last summer in Wagner's Run, a small stream emptying into Pocono Lake entitles him to it, according to George Zimmerman, angling veteran and Secretary of the Lehigh County Fish and Game Protective Association.

George informs us that while Mosser was fishing for brown trout on this stream one July day last year, a six-inch bluegill sunfish rose and was hooked. As he was bringing in the sunfish it was struck, not more than two feet from shore, by a much larger fish. In the clear water, he observed a fine smallmouth bass that had chosen the sunfish for a meal.

Aware that only by extreme patience could he hope to fool the big fellow, Moser tried the waiting game. After an interminable stretch (George tells us an hour and a half) he noticed that the bass had turned the sunfish and was trying to swallow it. He struck and the bass was landed.

And here's the best part of the incident. It seems that while the bass had gorged itself on the sunfish, the former did not come in contact with the hook at all. Instead, the smallmouth had been practically choked to death by the extended fins of its prey.

"If you want an explanation for my reason for insisting that Joe should have 'Versatility' for a middle name," writes George, "here it is: any fisherman who fishes for brown trout and catches a bluegill, and then a black bass 17½ inches long must have versatility."



DOOR PRIZE EXHIBIT FOR DINNER MEETING OF CLEARFIELD COUNTY FEDERATED SPORTSMEN

Latest Developments in Stream Purification Plan

IN the February issue of PENNSYLVANIA ANGLER you were advised of the "Dern-Lonergan" Conference and of the status of the very important national stream purification plan adopted by that conference.

On January 24th, Senator Lonergan wrote Secretary Ickes a strong plea for the plan adopted by the Conference, as representative of the sincere thought of the nation's leading conservationists and pure streams experts, and urged the necessity of altering any other plan that might be submitted to him by the National Resources Board to conform essentially with this plan if it was to receive the endorsement of the conservation forces. Secretary Ickes replied on January 31st advising that a special committee under the chairmanship of Mr. Thorndike Saville had been set up to guide the survey being made in this field, and that Mr. Crohurst of the U. S. Public Health Service would do some research work and report within sixty days. He added that the Advisory Committee of the National Resources Board had impressed him with the complexity of the general problem and the necessity of proceeding with caution in order to build a firm foundation of public support.

It is significant, if somewhat disappointing, that of the seven members on this special committee, the chairman and two others are the signers of the report rejected by the Dern-Lonergan Conference, while neither Honorable Grover C. Ladner, nor Dr. M. D'Arcy Magee, who signed the report adopted by the Conference, are represented.

It is sincerely hoped that this special com-



mittee will prove "action conscious rather than bureau minded" by approving a clear and definite plan of action such as is embodied in the Dern-Lonergan Report, rather than one of cautious hesitation replete with endless investigations and delays—a policy that has characterized all of our futile governmental plans to cope with the problem to date. In the meantime, Senator Lonergan is having the Legislative Council draft legislation in conformity with the "Dern-Lonergan Conference" Plan so that proper bills may be introduced in Congress in case the special committee's report takes an unfavorable turn.

If you have not already done so it is more important than ever that you write The President, your congressmen and Senator, strongly urging the adoption of the "Dern-Lonergan Plan for the National Purification of Streams." This is the opportunity of a lifetime to bring back pure streams—DO YOUR PART NOW!

League Seeks Adoption of Dern-Lonergan Plan

In a forceful letter to President Roosevelt, Phil G. Platt, president of the Pennsylvania Division, Izaak Walton League of America, urges adoption of a nation-wide plan to control the menace of stream pollution.

Following is his letter, which should serve as a basis for similar Communications to Washington on this subject so vital to the future welfare of the people and the conservation movement:

Honorable Franklin D. Roosevelt,
The White House,
Washington, D. C.
Dear Mr. President:

We beg to call to your attention a Nation-wide problem which we consider of primary importance to the welfare of our people; namely, the menace of polluted public waters. The existing unsavory and indecent condition of one of our Nation's greatest assets is freely admitted, yet year by year, the offence grows worse. Progress in elimination of stream pollution has in the past been blocked by a general adherence to the doctrine of "States' Rights," which merely means that the rights of the citizens of neighboring states are ignored. State gov-

ernments have attempted to justify this condition with the argument that with the adoption and enforcement of stringent anti-pollution laws, industry of such states would be placed on an unfair competitive basis with that of states which did not force its industry to meet this public obligation. We meet this argument with the indisputable statement, that all rivers and their tributaries eventually become inter-state. It is manifestly unfair to permit one state to pollute the waters of a stream which flows across the borders of, or adjacent to another state. The only logical method of bringing about the desired result appears to be that of definite Federal control.

There is a movement afoot to attempt a solution of the problem by means of pacts by groups of states, yet past experience indicates that such procedure is totally inadequate to the task. This method of approach invariably results in years of fruitless investigation and technical arguments without any visible accomplishment. At best, it would only half solve the problem, as there would be no uniformity of standards between the various state groups.

We believe that the only practical solu-

tion of this problem is an admission of Federal responsibility in the control of pollution, with a definite plan of cleaning up the people's waters through the establishment of Federal Watershed Control Boards, whose duty it would be to regulate the use and abuse of our waters to the best interest of our people.

In no phase of recovery could PWA funds be used to greater advantage than under this plan of stream purification. The plan not only provides work for the needy and permanent assets for the polluters, but results in direct benefits through purer water to all mankind below the present source of pollution.

In addition to the need of pure water by municipalities and industries, we must remember the potential fisheries, both commercial and recreational, which are being completely destroyed by the present system of poisoning our waters. With our present tendency to shorten working hours and increase leisure, it is part of our duty to provide clean, wholesome recreational facilities for our people. One of our most cherished desires is for association with health giving water in its various phases. If we do not destroy pollution, pollution will destroy us. The time for definite action is here; the method is available.

Hoping that the above will find a responsive chord, I am

Most respectfully yours,

P. G. Platt, President,
Pennsylvania Division,

Izaak Walton League of America.

YORK WALTONIANS BANQUET

One of York county's outstanding events of the year in conservation, the annual banquet of York Chapter 67, Izaak Walton League of America, was attended by approximately 225 sportsmen and their guests on the evening of February 21 at the York Y.M.C.A. David A. Garver, president of the chapter, acted as toastmaster.

The executive secretary of the Pennsylvania Game Commission, Ernest E. Harwood, Harrisburg, in his address said that it is necessary in order to keep up a nearly suitable supply of game to take care of the ever increasing number of hunters each year, to provide food for game. He stressed that it is important that every sportsmen organization and conservation group help to increase food bearing plants, shrubs and trees by plantings.

The editor of the ANGLER, representing the State Department of Fisheries, told the gathering that 595,000,000 fish were produced in the ten state hatcheries last year. He urged sportsmen to get behind the Ruth bill, which, if enacted into law, should drastically curb the pollution menace.

ENJOYS FISHING IN TUNKHANNOCK CREEK

Frank Galonis, Scranton angler, rates Tunkhannock Creek as one of the best bass streams he has ever fished. Last season on July 4, he made a splendid catch of small-mouth bass from the Tunkhannock. One of the bass in his catch measured 19 inches in length and another 17½ inches.

He also reports fine catches of suckers that he makes annually in this stream.

Sportsmen's Federation Holds Splendid Meeting

At the Fourth Annual Conference of the Pennsylvania Federation of Sportsmen's Clubs, held in the House Caucus Room at the State Capitol on February 12, representatives of over 400,000 organized sportsmen in the state carried through a splendid program designed to bolster materially the conservation movement in Pennsylvania.

Present at the meeting were Honorable J. Hansell French, Secretary of Agriculture, Major Nicholas Biddle, Philadelphia, of the Board of Game Commissioners, and John M. Phillips, former Game Commissioner, of Pittsburgh. Mr. French assured the Federation of the cooperation of his department in conservation matters, Major Biddle asserted that the Game Commission would work whole-heartedly in the interests of the sportsmen, and Mr. Phillips spoke briefly on the white-tail deer.

After hearing the Treasurer's Report and appointing the Nominations and Resolutions Committees, the Federation adopted a set of by-laws which, it is believed, will prove highly satisfactory to Pennsylvania sportsmen and at the same time are flexible enough to permit changes. The first discussion which caused a vote was the clause in the section giving the President the right to appoint eight Directors-at-large. The vote, called for by counties, gave the President this right, 20 to 19. The morning discussion centered about the by-laws, which were finally approved and adopted with but few minor changes. Dr. C. A. Mortimer, secretary of the Federation, hopes to have a supply of these By-Laws printed and on hand to supply all Clubs requesting them.

First of the speakers at the afternoon session was Kenzie Bagshaw, Director of the State Grange, who spoke regarding the attitude of farmers toward Sunday fishing and training of dogs on Sunday, and declared that Sunday fishing and dog training would cause many farmers to close their lands to sportsmen.

A communication from Governor Earle was read by President Grover C. Ladner in which the Governor expressed his regret at not being able to attend the meeting owing to the fact that he had to deliver his Budget Message to the House of Representatives and leave Harrisburg immediately thereafter.

Of particular interest to fishermen was the subject of Sunday fishing. Resolution No. 8 favored supporting a bill for Sunday fishing if the Fish Commission was given discretionary power to designate where fishing on Sunday should be permitted. The final vote, by County delegates, stood 22 to 19 against this resolution. A motion was made later, and carried, not to go to the Legislature in regards to Sunday fishing because of the close vote and the divided sentiment on this subject.

The Federation extended a vote of appreciation to Oliver M. Deibler, Commissioner of Fisheries, and Ernest Harwood, executive secretary of the Game Commission. A resolution to increase the cost of the fishing license by fifty cents, said increase to be used exclusively for acqui-

sition, improvement and maintenance of fishing waters, was rejected.

At this time, Chairman Ladner introduced Professor Harvey Surface, House Representative from Snyder county, who desired to consult the sportsmen on several bills pertaining to fishing then before the Fish Committee of the House. One of these bills had to do with restoring the outline and the Federation was vigorous in its opposition to such a move. Restoration of eel racks on certain waters was unanimously opposed.

Resolution No. 6, suggesting a bill giving the Board of Fish Commissioners discretionary power to close such feeder streams as it deems necessary, was adopted unanimously. The Federation also endorsed, without a dissenting vote, the sealing of abandoned coal mines and urged that this work be given first consideration in the approval of worthy work relief projects. It was also urged that sufficient money be allotted for both material and labor to insure a continuance of this splendid program as a permanent welfare project on a statewide basis under state direction rather than as individual county projects.

Resolution 13, reducing the creel of trout from 20 in one day to 15 in one day, was unanimously adopted. Another resolution adopted unanimously requested that the construction of new roads by CCC camps be curtailed, that such roads already completed be closed to automobile traffic, that no permits for camp sites be granted on these newly constructed roads, and that future road work of the CCC camps be confined to improvement of old established roads.

The assembled sportsmen voted to a man in favor of Resolution 17. This resolution reads: Resolved, that the Pennsylvania Federation of Sportsmen's Clubs recommend that provisions be included in the proposed revised constitution of the Commonwealth of Pennsylvania that the Fish and Game Funds be forever immune from any diversion whatever, thereby allaying the fears of the sportsmen that their money will be used for any other purpose than the conservation of fish and game.

Another resolution adopted unanimously calls for active support in the present session of the Legislature of a bill drafted along the lines of the Lose Pure Streams Bill introduced in the House during the 1933 session. In line with anti-pollution activities of the Federation is Resolution 19, which was also adopted unanimously at the meeting. This resolution reads: Resolved, that it should be enacted in the Legislature that in addition to the present fine of one hundred dollars for killing fish by means of pollution, the polluter be subject to a penalty of ten dollars per fish so killed, the same as a fisherman is fined for illegal fishing.

A resolution, to the effect that secretaries of organizations and individuals affiliated with the Pennsylvania Federation of Sportsmen's Clubs write to President Roosevelt urging him to adopt and put into immediate operation the federal anti-pollution program

advocated by the Dern-Lonergan Committee, was passed unanimously. Likewise was a recommendation that the Fish Commission do more stocking of three and four inch fingerling trout. Other resolutions pertaining to fishing that were adopted unanimously were: that the President of the Federation appoint a committee of three to investigate the possibility of Pennsylvania's adopting a policy to permit fishing in municipal water supplies as is being done in New York State; that the Legislative Committee be requested to study the Administrative Codes with the view of safeguarding the integrity of the Fish and Game Commissions; that the Federation go on record favoring the stopping of mining on State lands in the bituminous coal regions.

Among the proposed laws that received indorsement and which will be introduced into the Legislature were:

The classifying of the woodchuck as a game animal; granting of discretionary powers to the Board of Fish Commissioners so that they can control seasons, creel and size limits; removal of protection from the skunk; prohibiting the trapping of raccoons; prohibiting eel racks and eel pots on any streams in the Commonwealth; greater stringency in the "jack-lighting" laws; tagging of large game immediately it is killed; permitting the Sunday training of dogs, providing the written permission of the landowners is obtained; giving the Fish Commission power to close streams to fishing, and giving the power to the Board of Game Commissioners to establish bounties on any species of unprotected winged or footed creatures. Repeal of the Witkin Firearms Act was demanded.

Deputy Attorney General Grover C. Ladner was re-elected president of the Federation for 1935, Dr. C. A. Mortimer, Wilkes-Barre, was reelected secretary-treasurer, and John Youngman, Williamsport, was elected vice-president.

TAKES BIG BROWNIE ON NO. 10 WET FLY

Contrary to the general conception that big brown trout, those over 20 inches in length, are seldom taken on a fly, Ben Fisher, of Portage, last season caught a trout by this method of which any fisherman might be proud.

His catch, made on June 25th, was a 21-inch brownie weighing 3 pounds, 12 ounces. It was taken in the evening, 7:30 to be exact, and succumbed to the lure of a wet Beaverkill, size 10, according to Special Warden Harry Cowan, of Portage.

BIG BROWNIES CAUGHT IN WALLENPAUPACK

While fishing for bass and other warm water game fish in Lake Wallenpaupack during October, the 16th to be exact, A. J. Alden, Oliver Lutz and George Gelatt, secretary of Camp No. 13, United Sportsmen of Pennsylvania at Scranton, landed two big brown trout that after being measured were carefully returned to the water. Both trout were caught by Mr. Alden on live minnows in about 35 feet of water. Each measured 22 inches in length.

Famous Trout Streams; How to Reach 'Em

THE NORTH TIER

ON the eve of the 1935 trout season, many of our anglers are making plans for their first-day invasion of the streams. For those who are contemplating a try at the famous trout waters of the North Tier counties, Potter and Tioga, the ANGLER offers the following suggestions on how to reach them. Recent reports available at the Commission indicate that a splendid season is in the making on the North Tier. Higher water levels generally existed during the winter in most streams of Potter and Tioga counties and constitute a good omen for trouting this year.

Potter County Waters

Pine Creek in Potter County is one of the outstanding trout streams in Pennsylvania. Its swift current and deep pools, many of them overshadowed by rock ledges, harbor not only giant brown trout in the lower reaches but fine brook trout near the headwaters. Broad stretches of riffle and deep water, fringed by willow and brush, provide varied fishing for the angler. In early season, however, the current is so strong in the larger stream below Galeton that it is impractical to fish it. From Galeton to Walton, the stream is smaller and may generally be fished in April. Above Galeton, at Walton, Pine Creek branches, one of the branches being known as Nine Mile Run, the other as Cushing Creek or Brookland Branch. Cushing Creek affords fine fishing over about five miles of its course, although it is somewhat brushy. Highway route 449 follows this valley over the entire length of the stream.

Nine Mile Run, heavily bordered by brush and willows, is followed by route six. A number of large beaver dams have been built on this stream. Entering Pine Creek at Galeton is the West Branch of Pine Creek a stream having about 16 miles of good trout water. Formerly only about 11 miles of the West Branch was accessible by road, but a good trail built by the C. C. C. camp at Corbett now follows it to the headwaters.

Flowing into the West Branch about six miles above Galeton is Lyman Run, with a stream length of about 11 miles. For a distance of about seven miles, Lyman Run is accessible by road. Its upper stretches, brushy and having many beaver dams, may be fished only by walking.

Another favorite trout stream in Potter County is Kettle Creek, which may be reached from Galeton over routes 144 and 44 at Oleona and Cross Fork, or over route 873 out of Renovo. Route 873 crosses the the lower waters of Kettle Creek near Hammersley Fork. Kettle Creek offers not only 30 miles of trout water on the main stream, but has numerous fine tributaries along its course. It differs from a number of other Potter County waters in that it has available more deep pools. Its watershed is timbered with second growth forest and near the headwaters it is very brushy. From a point near Oleona where route



KETTLE CREEK ABOVE CROSS
FORK

44 crosses Kettle Creek, the stream is not accessible by road for a distance of four miles. Four miles above route 44's crossing, another road spans it near the juncture of Germania Branch. For another interval of four miles, the stream is not accessible by road. From this point, known as Slider's Dam, a road follows Kettle Creek to the headwaters.

Cross Fork Creek also ranks well as a trout stream, providing about 12 miles of good fishing above its point of juncture with Kettle Creek at Cross Fork. The stream, fringed by brush and willows, is followed by a road, and has two good tributary waters.

To fish Hammersley Fork, a stream regarded as one of the best in Potter County, follow route 873 from either Renovo or Cross Fork. This road crosses the stream at a point about five miles below Cross Fork. A new road follows Hammersley for a distance of three miles upstream to where it branches. Trails recently constructed by a C. C. C. camp follow the right branch and the Bell branch. Fifteen miles of secluded trout waters on the Hammersley yield fine creels of the speckled beauties to anglers each season.

The East Fork of the Sinnemahoning is another stream having strong appeal for the trout fisherman. It is accessible from either Wharton or Conrad and is about 15 miles in length. The upper waters of the Allegheny River, reached from Coudersport, offer good brown trout fishing. Willows predominate in the growth along its shores. Its drainage area covers not only some woodland, but also cultivated land, and owing to this fact, hard rains usually result in high and murky water. Even when the wa-

ter is murky, however, brown trout and some real old-timers at that, are taken.

Tioga Trout Streams

Tioga County trout waters rival in many respects the splendid streams in Potter County. Their drainage areas are somewhat similar, as are stream characteristics. A number of Tioga streams are swift-flowing, swirling through timbered areas, then emerging into open meadowland. For the fly fisherman, they afford just that touch of variety necessary to keen enjoyment of his art.

Ranking as major streams are Pine Creek, Phoenix Run, Asaph Run, Cedar Run, the Tioga River, Slate Run, and Kettle Creek, which heads in Tioga County nine miles west of Watrous. Of these streams, Phoenix Run, Long Run and Asaph Run are easily accessible early in the season and provide great fishing. Phoenix Run crosses highway route six at a point two miles below Galeton, flows almost entirely through State forest and is a splendid brook trout stream. At Gaines, route six crosses Long Run, a meadow stream furnishing good brook trout fishing. Asaph Run is a tributary to Marsh Creek. It is a stream flowing through forest land, and has its point of juncture with Marsh Creek at Asaph, eight miles from Wellsboro.

Pine Creek in Tioga County is a picturesque stream, having 13 miles of good trout water from Ansonia to the Potter County line. Early season fishing on this stream, however, is usually not practical owing to high water. The Tiadighton Gorge, formed by Pine Creek, is one of the outstanding scenic views in Pennsylvania. At places in the gorge, the towering cliffs on either side are so sheer that it has been said that not even a deer may scale them. Only when the water is low may this section of the stream be fished, and even then considerable risk must be taken by the angler.

Cedar Run, a forest stream of low temperature water, flows into Pine Creek at Cedar Run. Deep pools, in which brown trout are lurking, lure the angler to its lower waters, while near the headwaters good catches of brook trout are made.

On Kettle Creek are numerous old splash dams and beaver dams. In its wide pools are found some of the largest brook trout in Tioga waters, and great fish stories have their origin on this beautiful stream.

Of the smaller streams, Mill Run and Four Mile Run have unusual scenic beauty. Mill Run, a brook trout stream, is famous for the Mill Run Glen, while on Four Mile, with its magnificent gorge, the deep coloration of brook trout is a favorite topic of conversation with Tioga fishermen. Four Mile Run may be reached from Rexford over a new forest road.

CATCH BIG SUCKERS

The largest sucker reported to the Fish Commission so far this year was taken by Harry Appenzeller of Chambersburg. According to Warden Charlie Long of East Waterford, Harry's catch measured 20 inches and weighed 4½ pounds. At that, the size of this fish may have been bettered by a sucker taken by W. H. Roll of Chambersburg. Roll's catch measured 21 inches in length but no weight was given. Both catches were made in Franklin county waters during January.



SETH SAYS

Over to the store a week back, a bunch o' the boys hed a real git-together. We hed considerable talk about the sucker fishin' an' then, o' course, Sam Jenners bein' strong on trout fishin' hed to bring thet up. Sam sez he's made up his mind this year not ter keep a trout under eight inches an' ter be most tarnal keerful in handlin' any fish under thet size.

Seth, sez he, its jest about time us fellers starts thinkin' more on savin' fish an' less on ketchin' 'em. An' another thing, I'm tellin' you boys, ef enny o' this bunch goes afishin' up the fork we put them young trout in last spring he's agonner hear plenty on it. Them trout is doin' great an' soon's they get big enuf they kin git inter the main crick an' help our fishin' no end. 'Tain't no fun fer enny feller to go ketchin' four er five inch trout an' killin' 'em right an' left. Enny feller thet likes fishin' like thet jest ain't in our bunch leastwise thet's how I figger.

Well, sir, the boys they backed Sam right up, an' some o' them sed thet they was gonner lay down the law to their kids ter keep off the fork in fishin'. An' another thing, there ain't a goin' ter be any fish hog tolerated in our bunch this year. A mess o' trout jest enuf fer enny family an' no more is gonner be the rule.

Right now, I'm sayin' we're in fer some great trout fishin' when the season opens an' ef every man does his bit, our trout fishin'll come back with a bang the next few years.

PREDICTS GOOD TROUTING IN COLUMBIA COUNTY

In a recent letter, A. A. Allegar, special warden at Berwick, Columbia county, predicts a splendid season for trout in streams in that section of the state. He writes:

"It is my belief that our trout fishing here in Columbia and surrounding counties is going to be the best in 1935 that it has been in years. During the recent hunting season, I heard numerous hunters comment on the number of trout they saw. For instance, on the East Branch of Fishing Creek, I personally saw brook trout that were very large.

"Last year, in the forepart of June, one of our noted trout fishermen returned from a trip to Rock Run in Lycoming county with thirteen of the nicest brook and brown trout I saw during the 1934 trout season. The fisherman was Charles Lewis of Berwick."

ANNOUNCE DATES FOR WALTONIAN CONVENTION

The Thirteenth Annual Convention of the Izaak Walton League of America will be held at the Hotel Sherman, Chicago, on April 11, 12, and 13 according to a recent announcement.

"A cordial invitation is extended to the general public to attend this national League convention," writes S. B. Locke Conservation Director of the League. "We are hopeful that Pennsylvania will have a big delegation present."

How to Cast a Fly

1. Normal Fishing Position. Rod about 15° to 20° above horizontal. Line and fly extended on the water.

2. The Lift. Rod raised to 60° to overcome inertia of line and lift it from the water. The lift should be made by an upward rather than a backward motion to insure a high back cast.

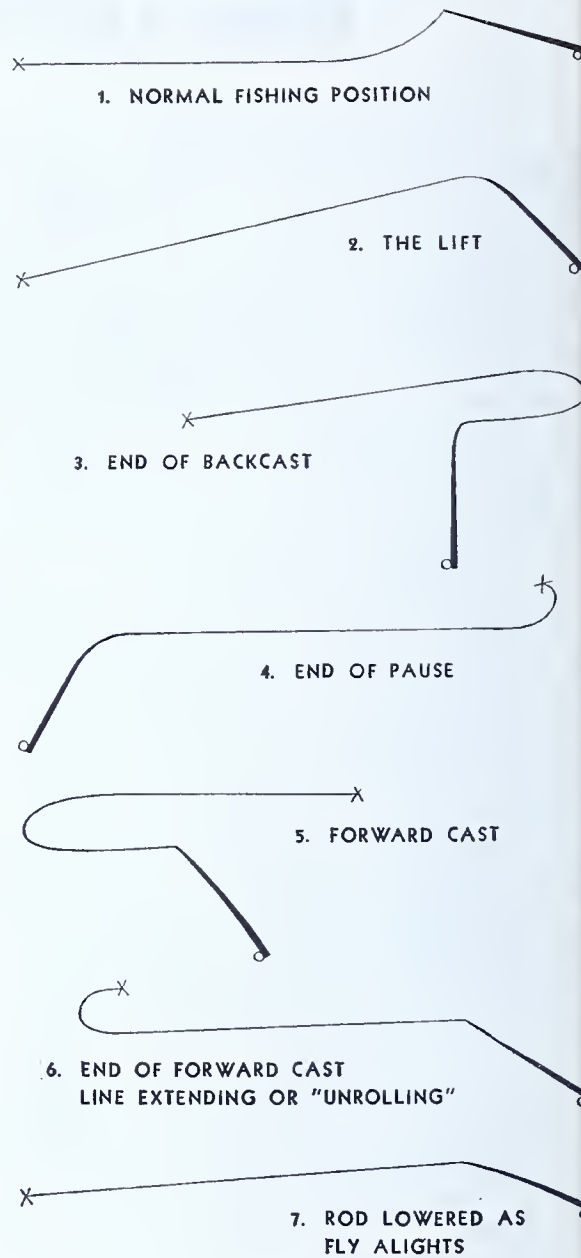
3. The Backcast. The lift and the back-cast are merged into one smoothly accelerating motion. The power stroke should be stopped at or slightly before the perpendicular, from which point the rod naturally follows back to the position in Figure 4. Note the position of the line unrolling above and back of the rod top in Figure 3.

4. Position at the End of the Pause. Rod should be stopped at about 20° behind the perpendicular. Note that the line has almost but not quite unrolled and straightened out its loop above and behind. While the common fault is to start the forward cast too soon, if you wait until the line is entirely unrolled, it will immediately begin to fall and will have lost its "live" feel so necessary to a good forward cast.

5. The Forward Cast. Note the forward traveling loop of the line.

6. End of the Forward Cast. The loop is nearly unrolled.

7. Rod Lowered as Cast Is Completed, and line, leader, and fly drop lightly on the waters.



FISH DISTRIBUTION—1934

Species	Size	Age	Number
Brook Trout	6" to 12"	17 to 30 months	985,906
Brown Trout	6" to 12"	11 to 30 months	337,866
Rainbow Trout	11" to 12"	17 to 19 months	2,125
Brook Trout	Fingerling		2,156,490
Brown Trout	Fingerling		18,200
Black Bass	1" to 7"	3 mo. to Adult	222,480
Sunfish	1" to 4"	4 mo. to Adult	2,287,250
Catfish	2" to 10"	4 mo. to Adult	770,918
Yellow Perch	Fry to 10"	Fry to Adult	400,179,705
Pike Perch	Fry	Fry	33,385,049
Minnows	1" to 4"	5 mo. to Adult	1,495,600
Frogs (Embryo)	1" to 4"	4 to 12 months	1,054,940
Lake Trout	2"	4 months	76,800
Pickerel	12" to 15"	Adult	5,272
Suckers	5"	17 months	1,860
Yellow Perch (Lake Erie)	Fry	Fry	70,000,000
Pike Perch (Lake Erie)	Fry	Fry	17,511,000
Cisco (Lake Erie)	Fry	Fry	23,380,000
Blue Pike (Lake Erie)	Fry	Fry	41,968,000

Total 595,839,461

NEED FOR MORE URBAN HUNTING AREAS URGED AT PHILADELPHIA DINNER

A vital need for more public hunting grounds for sportsmen in heavily populated sections of Pennsylvania was emphasized at the Fifty-Third Annual Dinner of the Pennsylvania State Fish and Game Protective Association by Major Nicholas Biddle, of the Board of Game Commissioners. Over 700 sportsmen from Philadelphia and southeastern Pennsylvania attended the dinner of the association held in the Penn. A. C. on February 13. While primarily, Major Biddle stressed the importance of more available land for hunting, his subject is also one of keen interest to Pennsylvania anglers from the angle of more available fishing waters.

"It is manifestly unfair," he said, "to sell hunting licenses in the congested territory surrounding this city and Pittsburgh without making some attempt to provide a place to shoot. The present situation calls for a remedy. One of the chief objectives of the new Game Commission will be an effort to acquire as many public shooting grounds and game refuges as funds and available lands will permit."

The splendid success of the organized sportsmen movement in Pennsylvania was stressed by Commissioner of Fisheries Oliver M. Deibler at the dinner. He pointed out that one-eighth of all the organized sportsmen in the United States reside in Pennsylvania.

Of vital interest to fishermen present was the disclosure by Kenneth A. Reid, member of the Board of Fish Commissioners, that immediately after the close of the annual meeting of the Federation of Sportsmen's Clubs in Harrisburg on February 12, an order was issued stopping all work on sealing abandoned coal mines. As the action was in direct opposition to the wishes of the sportsmen of the state, a real probe may soon be under way to determine responsibility for it. It was pointed out that the stoppage of abandoned mine sealing has now occurred four times and aroused sportsmen are rapidly losing patience. Led by Grover C. Ladner, deputy attorney general, a vigorous drive against pollution of all types in Pennsylvania waters is now under way, and every effort to have abandoned mine sealing placed on a permanent basis will be made.

Adolf Muller, former president of the Game Commission, received the association's annual award for outstanding service in Pennsylvania conservation, a gold medal bearing the insignia of the association. The Dr. Charles E. Codman Prize for the best fishing or hunting narrative of the year was awarded to Arthur C. Emlen for his story "Start Them Early." The Association's award for killing the most watersnakes during 1934 was made to William Pinkerton. Hugh S. Walker won the prize for the best photograph.

Presiding at the dinner was Edgar W. Nicholson, Board member and president of the association. The roster of guests included Judge Harold L. Knight, president of the Montgomery County Fish, Game and Forestry Association, Judge Frank Smith, Dr. William H. Moore, Livingston E. Jones,

H. R. Stackhouse, executive secretary of the Fish Commission, John M. Phillips, president of the Game Commission from 1905 to 1913, and C. R. Buller, deputy commissioner of fisheries.

WHICH SNAKES SHOULD BE KILLED?

(From Page 5)

watersnake. Being a poor eater in captivity, much less is known about its diet.

The house snake, milk snake or checkered adder as it is variously known, belongs to the king snake group, sometimes including poisonous ones. A large part of their food is made up of rodents. The tale about this snake milking cows is becoming less prevalent, I believe. It seems almost unnecessary to mention that few cows would tolerate their small, sharp teeth. Even granting that, the quantity of milk taken would be so small as to be hardly noticeable. My frequent attempts to have snakes of various species drink milk have all met with failure, although all snakes will freely drink water. House snakes should not be killed.

The hog-nosed snake, spreading adder or blowing viper, feeds almost entirely on toads and frogs. They are innocuous, and their interesting antics in bluffing and "playing possum" are deserving of life. Unless found in unusual numbers it would be well to let them live. In spite of their seeming viciousness I never could induce one to bite, even when thrusting a finger between its open jaws.

The grass or green snake is one of the few insectivorous snakes to be found anywhere. It lives on larval insects as well as the adult stages of certain species. It is not poisonous, many fantastic stories to the contrary. Though they struggle hard to escape, they will not bite. To those who are free from an unreasonable fear of snakes, the grass snake is a very dainty little creature, and it is a shame to kill one.

The Dekay's snake, the red-bellied snake, the ringnecked snake and various other small species feed on worms, small salamanders, etcetera. The zoological interest should make their destruction inadvisable.

Our three poisonous species are perhaps of economic benefit, from the standpoint of feeding habits. They eat more rodents than anything else. The Massasauga rattlesnake and the copperhead sometimes feed on frogs to a limited extent. Due to their dangerousness to man, it is of course advisable to destroy them.

In general, most of the larger species of snakes eat warm-blooded animals; more harmful rodents than anything else, and so should not be killed. The small species feed principally on cold blooded prey such as worms and salamanders, and are probably not of great importance one way or the other. Garter snakes and watersnakes have little to be said in their favor, and it would be well to confine our efforts at killing to these two species.

Washing dry flies in good soap powder at the end of the season will bring out the fluffiness and renew them for use the next season.

TROUT STREAM NYMPHS

(From Page 4)

with the thumb and first finger of the right hand, make one-half of a clockwise turn around the hook, binding down the end held in the left hand. Release this end and with the thumb and first finger of the left hand, straddle the hook, grasp this turned over portion, hold it taut until the right hand can be turned counter-clockwise in the loop to get the new hold. Now with the new right hand hold, make a turn around the hook, again employing the left hand to hold it tight for the next new position. Make four such turns around the hook. Slip the dubbing needle in the loop, grasp the free end as shown in Fig. 7 and pull it tight over the needle. It is well to practice a few times with a heavy fish line, before attempting to tie this knot with the finer silk.

After the knot has been pulled tight, the excess end of tying silk should be clipped, and the head treated with shellac. With the dubbing needle, pick out a few fibres of fur on the back, near each side of the abdomen. This feature is supposed to represent the erect gill covers. With the scissors trim off the excess projecting pieces of fur, and the nymph is finished. Fig. 5 shows the completed nymph.

In reviewing the discussion on nymphs, let us collect a few of the more salient points which may have a bearing on our fishing.

We know that the nymph's head is always upstream; we have seen how it moves; we have a mental picture of it floating downstream and upwards towards the surface; we think the trout catch most of them in making this ascension; we know they float near the top of the water prior to assuming the winged stage; we presume that the trout prey on many which are crawling around the stream bed—for the insects are not always hatching out; we now know how to construct an imitation, which can probably be improved upon. We know all these things.

What we don't know is how to catch trout with the artificial! And that fact, my readers, I am leaving to you!

And now in concluding these articles, it is with the hope that I have contributed something to the advancement of fishing in general and to making your stream days more pleasant. With that end in view, I have labored to make my sketches and descriptions as clear as within my power, and if I have succeeded then the object has been achieved.



BROWN TROUT, 6 POUNDS, 8 OUNCES, CAUGHT LAST SEASON BY F. D. WALKER, OF EDINBORO, IN LITTLE CONNEAUTE CREEK



HERE ^{A_ND} THERE IN ANGLERDOM



The Juniata river and its famous tributary, the Raystown Branch, furnished some exceptional catches of bass last season, according to Warden Charlie Long of East Waterford. Fishing in the Raystown dam, George Stitt of Duncansville caught a large mouth bass weighing 7 pounds, 8 ounces. In the Juniata at Granville, Mifflin county, Russ Bair of Lewistown caught two small-mouth bass, one measuring 22½ inches and weighing 4½ pounds, the other 16 inches and weighing 2½ pounds. He used stone catfish as bait.

A big catch of calico bass was made in the Juniata river in October by Ray McCombie and Clair F. Krug of Spangler, according to Special Warden Bill Keebaugh of Hustontown. The calicos ranged in length from 9 to 13½ inches, mighty nice fish for this species in any water. Keebaugh also reports that the Raystown branch yielded two wall-eyed pike or Susquehanna salmon to John Gray of Huntingdon. The fish measured 26 and 27½ inches respectively and had a combined weight of 9 pounds, two ounces. Stone Creek in Huntingdon county, generally regarded as smallmouth bass water in its lower reaches, provided a surprise catch for Clarence Harris of Huntingdon last Labor Day. He caught a largemouth bass measuring 16½ inches and weighing 3 pounds, four ounces.

One of the nicest brown trout taken out of Laurel Run, Mifflin county, last season, was that landed by Prestie Snook of Milroy. The brownie measured 19 inches in length, according to Warden Charlie Long.

Montgomery county anglers did their stuff on the Perkiomen last season. A 19 inch, four pound bass was taken by Charles Hughes of Norristown. Bill Herst of Pennsburg caught a bass measuring 17½ inches. P. Snyder, Pennsburg, scored with a 15-incher, while Bob Berkheimer of Red Hill landed four bass ranging in length from 11 to 13 inches. A crappie measuring 11½ inches was taken by Bill Smith of Red Hill.



FLOYD HEAD, DUKE CENTER, SHOWS OFF A 19-INCH BROWN TROUT FROM NORTH BRANCH OF SUGAR RUN

Six bullhead catfish and a yellow perch that had a combined weight of 14 pounds is a catch worth telling about. It was made by Fred Seitler, Smethport, R. D., in the Allegheny River, reports Warden J. Albert Johnson. Some of catfish and yellow perch averaged two pounds apiece.

Artificial flies accounted for a nice catch of smallmouth bass on the Raystown Branch of the Juniata last summer, according to Warden Link Lender of Bellwood. Three members of the Bellwood Sportsmen's Association scored this catch. They were George Shope and H. C. Bingman of Bellwood and C. W. Strickland of Greenwood. Fifteen bass, from 12 to 18 inches in length, comprised their creel.

ANOTHER ALLY FOR THE SNAKE-HUNTERS

So much has been written, pro and con, on the salamander, waterdog or hellbender, that the status of this grotesque looking creature is somewhat clouded. The most recent and perhaps startling phase concerning its habits is that furnished by Harry Shawkey, veteran Warren fisherman.

While fishing in the Allegheny in September, Shawkey saw a portion of a watersnake's body on a rock. About to kill the snake, he noticed that a salamander had already consumed a part of the reptile.

"Following my first impulse," writes Shawkey, "I dispatched the snake, and the salamander swam away immediately with its prize. This was my first intimation that the hellbender had joined the sportsmen in a campaign against the watersnake as a destroyer of fish. I may add that the snake in question constituted the forty-eighth I have dispatched this season."

January sucker fishing on the Upper Delaware was exceptional, according to Warden Frank Brink of Milford, Pike county. Everett Leicht, Milford, caught 25 in a day's fishing. Fred Hotalun, Dingman's Ferry, 25, Fred Herman, Matamoras, 24, Paul Krause and Fred Krause, Matamoras, 8 and six respectively. The catches followed an eight foot rise in the river.



CUSTIE WAGNER, BELLEFONTE, WAS MIGHTY PROUD HOLDING THESE TROUT HIS DAD CAUGHT IN SPRING CREEK

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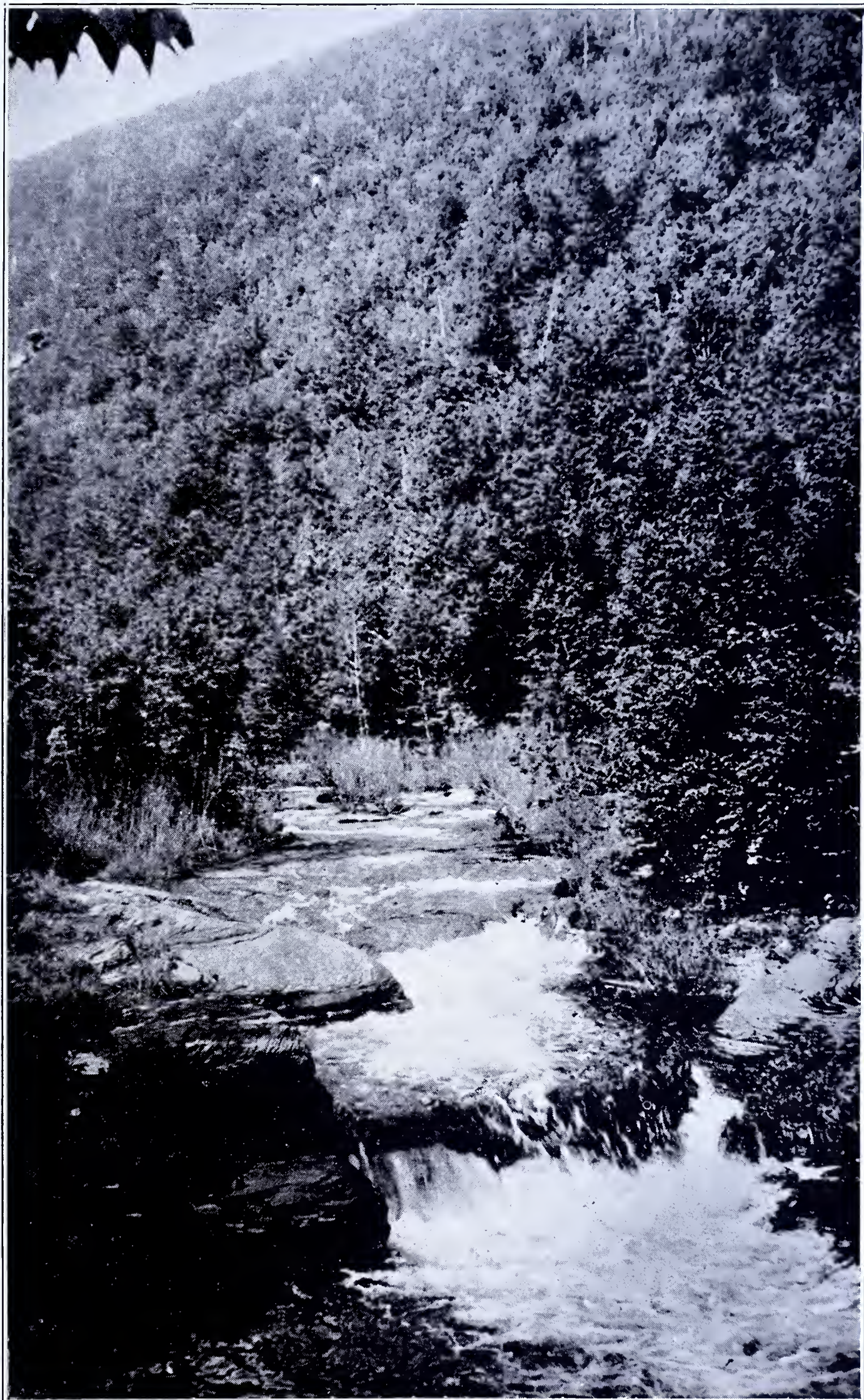
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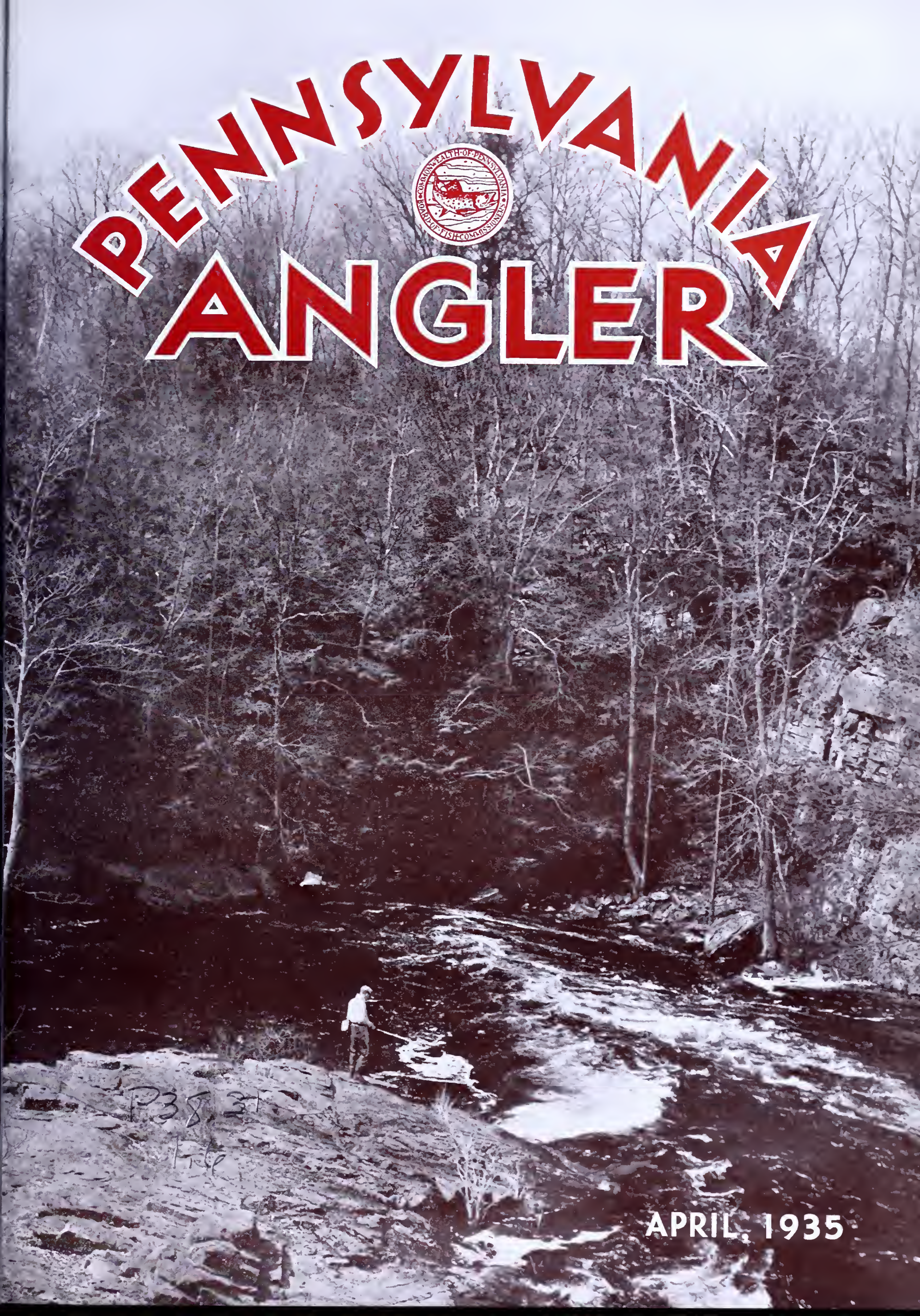
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PENNSYLVANIA ANGLER



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PENNSYLVANIA ANGLER

APRIL, 1935

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EDITORIAL

For Better Trout Fishing REDUCE YOUR KILL

Our Pennsylvania trout fishermen this year should enjoy the finest season they have had in the past decade. There is reason sufficient to back this statement. Our annual stocking program of legal size fish and over has been augmented by a constantly increasing supply of trout from the two new farms at Huntsdale, Cumberland county, and Spring Creek, Centre county. Even during midwinter, the distribution of trout was continued. The autumn planting, heavy though it was, will probably be equalled or surpassed by the intensive spring stocking program now virtually completed. And to clinch the argument, water conditions have been ideal in most mountain and meadow streams for trout stocking. From the raising and stocking side of the trout fishing picture and water conditions little is to be desired. Now let us turn to the other, and far more important side—the fisherman's side.

In furnishing better trout fishing in Pennsylvania we must face one fact squarely—the virtual impossibility of providing good trout fishing unless our fishermen are willing to fish more for sport and less for meat.

Better trout fishing means that those who have been killing too many, must kill less, in order that those who have not killed any may have a chance.

While the number of licensed anglers has not increased to any great extent during the past four years, the amount of fishing has increased many fold. The amount of leisure most of our fishermen have had on their hands during these years has increased our fishing and

taxed our streams and lakes more than five times as much as this number of fishermen would have taxed them prior to 1931. Many of our fishermen who usually fished a few days or took several trips to our streams five years ago, now go camping for weeks at a time and many of them fish practically every day throughout the trout season.

I feel safe in saying that one quarter million anglers today put in more days fishing than one million would have five years ago. We must also not lose sight of the fact that during these past five years, Pennsylvania's streams have undergone the most severe drought in the history of the Commonwealth. This made it not only easy for the illegal fisherman to ply his trade but for every form of predator, it was likewise made easy.

Judging from reports by our field force and some hundreds of anglers, I am convinced that the watersnakes alone during this period have taken as large a toll of our trout as the fishermen. Therefore, I feel sure that the one-half million fishermen we have today, including boys and girls under sixteen years of age, who, I think sometimes, outnumber the licensed fishermen, have reached the saturation point in our present fishing conditions. I am firmly convinced with these conditions staring us squarely in the face, if we are going to have worthwhile fishing for the average fisherman in Pennsylvania, we must either forget all about the "LEGAL LIMIT" or pare it down where the average angler can at least have a chance against the meat fisherman, who in the past has had no regards or respect for the rights of the great throng of fishermen who after all, largely pay the bills. It is not necessary for the Real and True Sportsman to have a limit set by law, as his limit is fixed by the true spirit of sportsmanship and his regards for the rights of others. His sport is not calculated or measured on the basis of the amount or number of dead fish he brings home.

Assuming that of the one-half million anglers we have only about two hundred thousand trout fishermen, which I believe is placing the figure very low, if these fishermen were all on our trout streams the first day of the season, each man would have approximately ninety feet of stream for his territory in which to fish. That should give you the basis on which the trout fishermen of Pennsylvania should do some calculating. Furthermore, if these two hundred thousand fishermen were all inclined to take the limit and were able to do so for one day only, simple mathematics would show you that it would require four million legal sized fish to supply the present "LEGAL LIMIT."

According to the calculations of the best trout authorities of England, it requires, under favorable conditions, an acre of trout waters to produce ten pounds of fish. It is therefore, very doubtful whether the trout waters of Pennsylvania could support at the present time, four million legal trout.


I believe that a vast majority of our anglers are primarily conservation-minded. The trouble has been that thoughtlessness in many instances has resulted in a fisherman's taking 20 trout, far more than he needs for a meal for his family. Unfortunately, there are many who take the "LIMIT" and like to boast about it. These men, probably in their own opinion, feel that it enhances their reputation as skilful fishermen to accomplish this "feat." What they are really doing is spoiling the fishing for many of their fellow anglers. They are taking their share, and John's share and Jim's share. In every sense of the word, they are "meat fishermen" and "meat fishermen" like "meat hunters" went out of style here in Pennsylvania with the passing of the slaughter era during the 19th century.

There is far more to fishing than just catching and killing fish. There is sport in it, exhilarating, carefree sport, and a keen joy in just being out along a beautiful mountain or meadow stream. You have probably all heard that saying, and how true it is—"To know a man, it is only necessary to go fishing with him for a single day." The manner in which he responds to this splendid, wholesome recreation is often an unfailing index to character.

The day is coming when a man who has taken all the trout his creel will comfortably hold, instead of braggingly showing the catch to friends, will shame-facedly slip into the house with his "limit." Sportsmanship is a growing creed, and sportsmanship and conservation go hand-in-hand.

To achieve that objective which is the desire of our fishermen and their Fish Commission—better trout fishing—we must pull together. We must discard the time-worn and fortunately out-dated ideas that permitted an angler to take not only his share but the share of ten of his fellow fishermen during a season. We must fish more for sport, less for a full creel.

In other words, Mr. Fisherman, if you want better fishing, **REDUCE YOUR KILL.**



Commissioner of Fisheries.

Will Rainbow Trout Thrive in Pennsylvania?

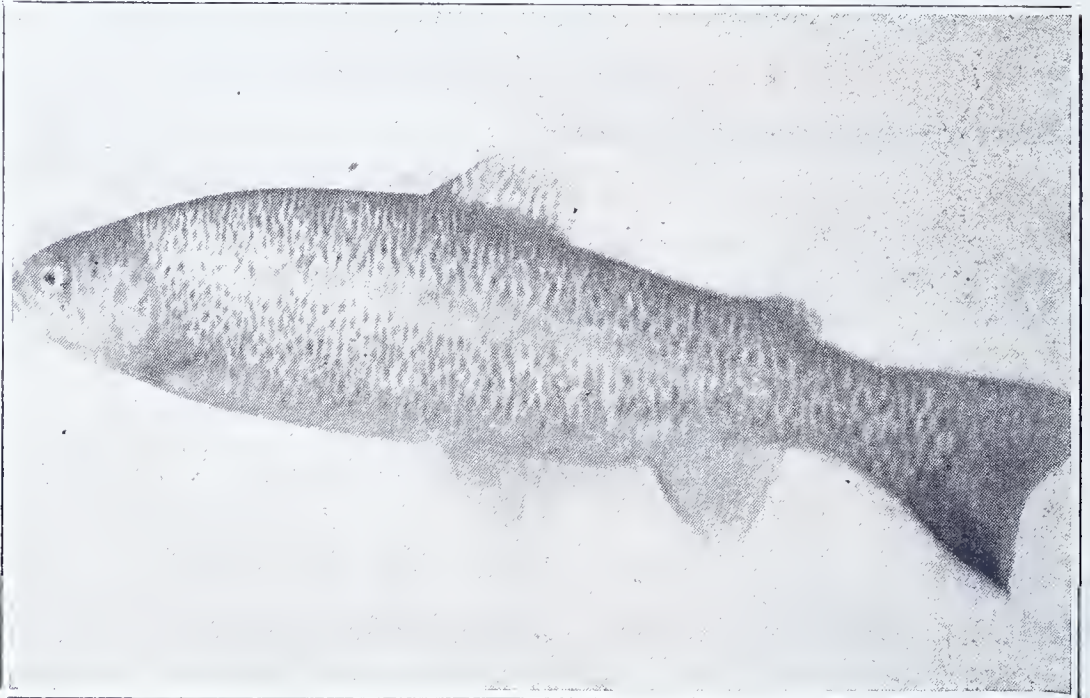
THE compact, iridescent beauty of a rainbow trout is matched by another quality that causes it to rank ace-high with fishermen—gameness. Its readiness in rising to an artificial fly, graceful lunges from the surface after the hook has been set and dashing underwater tactics are characteristics placing it on the pinnacle of game fishes. Take a fifteen-inch rainbow in fast water and be convinced.

This introduced trout from the Pacific Slope is fast coming into its own here in Pennsylvania. True, only certain streams are believed suitable for it but if, during the next ten years, Pennsylvania can boast one exceptional rainbow stream in every hundred major trout waters throughout the state, a lasting contribution to our trout fishing will have been made.

A glance through the records of attempted stockings with this species convinces one that such attempts were often failures. The rainbow's tendencies to migrate to larger streams when it arrives at maturity frequently may result in loss, particularly since many of our trout waters eventually find their way into polluted areas.

Early Plantings

In considering the failures that attended early efforts to introduce rainbow trout to Pennsylvania waters, certain facts must be emphasized. First was a general misunderstanding of the requirements of this fish. Strangely enough, the warm climate prevailing in its native habitat was largely responsible for this error. Finding that the rain-



bow trout were abundant in streams in a very warm climate, it was assumed that they would withstand, and thrive in, waters of much higher temperature than those in which brook trout could exist. As a result of this mistaken impression, thousands of young McCloud River rainbow trout were planted in streams carrying a temperature well over 70 degrees. The rainbow caught popular fancy, owing to its beauty and supposed hardiness, and indiscriminate stocking was general. As a result, after distribution had been made to many streams, the young vanished in a brief time.

But to attribute failures of early stockings entirely to this misunderstanding of environmental requirements would perhaps be stretching the point. It should be recalled that, during the period from 1870 to 1900, much of the stocking was accomplished with trout in the fry stage. The loss from such planting was certain to be heavy, for during that era the great forests were falling before the relentless advance of the saw-mill, spring freshets were frequent in the larger waters to which the rainbows were introduced, and unfavorable conditions for growth of the fry obtained in many instances.

A factor not taken into consideration to any great extent in early plantings of rainbow trout was the nature of the streams to which they were native. While, it is true, some of the lower waters in which these trout were found did have higher temperatures, there was a compensation for this factor in aeration through swiftness of their flow and the presence of swirls, eddies and white water. Furthermore, rising in the snow-clad peaks of the Sierras, these streams at their points of origin were of the coldest and purest character, having their sources in the perpetual ice and snow of the moun-

tains. The rainbow trout, like our charr or eastern brook trout, requires pure cold water. In addition, boulder strewn streams in which swift and heavy current has created pockets, swirls and deep swift pools are essential for the fish.

While on the subject of introduction of the rainbow trout, mention of attempts to introduce another great game fish, Atlantic salmon, in Pennsylvania should be made. There is a tradition that at one time the Delaware was a salmon river, but of this there is little or nothing on which to test its truth. So general was the belief, however, that the Delaware was suitable for this king of game and table fishes, it was decided in 1871 to experiment by planting salmon fry. A number of sportsmen in Easton and Philadelphia, interested in fish culture, accordingly raised a sum of money and purchased 10,000 salmon eggs from a Mr. Wilmot of New Castle, Canada, then in charge of the government hatching house of the British Dominion.

Although the fry were hatched successfully, most of them died or were so weakened in the journey to the river that the attempt ended in failure. The next attempt, made under the direction of Thaddeus Norris, Philadelphia, was more successful, and 11,000 young salmon were released in a tributary of the Delaware. Of this and subsequent plantings, little was heard for a number of years. While a number of the fish, some weighing 15 pounds and over were taken during the late 'nineties by shad fishermen, in more recent years the species has been practically unknown. Attempts to stock the Pacific salmon in the Susquehanna also met with failure.

Reference to attempts at stocking the salmon is made in passing to illustrate this fact: almost universal failure of such ef-



RAINBOW TROUT, 19 INCHES.
FROM THE BROKENSTRAW

forts in transplanting species of game fish not native to Pennsylvania waters. Notable exceptions to this rule, of course, are the black bass and brown trout. There is reason to hope that the rainbow trout will prove a third.

The Rainbow—Pro and Con

In considering the present day status of the rainbow trout in Pennsylvania, let us review first the factors against future success of its planting. First, we know that it is by nature a wanderer. Its gypsy traits account in large part for the capture of rainbows in the Allegheny and Delaware rivers. This migratory tendency is, therefore, a major drawback to ultimate success of the program, for in many instances trout that found

drawn up. That the survey should be helpful in planning the rainbow trout distribution program is not to be questioned. Authorities on the requirements of the rainbow trout call attention to the fact that if a large stream, having sufficient aeration and a fairly high temperature also has abundant shade, this may serve as part compensation for the higher temperature. Stream improvement and the willow planting campaign to be carried on this summer may decisively better conditions on certain streams to which the rainbow trout may be introduced.

Rainbow trout rely on insect food, crustacea, larvae and worms as a basic supply of forage more than do brook or brown trout. It has been suggested that owing to their



WALLENPAUPACK CREEK



THE RAINBOW IS A LOVER OF THE WHITE WATER

their way into larger polluted waterways would stand little chance of returning.

A second, and perhaps equally serious drawback, is the fact that Pennsylvania today boasts comparatively few major trout streams answering the requirements of fast churning water that the rainbow loves. Apparently, the only answer to this phase of the problem will be concentration of all rainbow stocking to such waters.

Now, let us review the factors that pre-empt success in providing more rainbow trout for Pennsylvania anglers. We know that certain trout waters, Penn's Creek and Spring Creek in Centre county and the Wallenpaupack in Wayne county, for instance, yield catches of rainbow trout each year. The Brokenstraw in Warren county also provides some rainbow trout. The largest rainbow to be taken in Pennsylvania, records at the Fish Commission indicate, was an 8-pound fish taken from Lick Run in Clearfield county. Since many of the trout taken from such waters were of large size, it is reasonable to assume that some rainbow trout have found a suitable environment in these streams. But the final test in the stocking of any species of fish must be the number of fish yielded to the fishermen in comparison to the number planted.

Under the stream survey conducted by the Fish Commission, a comprehensive chart of conditions obtaining on trout waters has been

habits in this respect, most successful rainbow plantings are to be made in the spring or early summer when this type of food is at its peak of abundance in the stream. They do not take to feeding on minnows as readily as do the brook or brown trout.

Spawning time for this species may vary considerably in Pennsylvania. While generally it comes in May or early June, a study of the habits of the introduced rainbow would indicate that this spawning period may extend more toward autumn in succeeding generations.

Rapidity of growth after it has attained a

length of six inches is a factor making this fish ideal for stocking in our streams. Under present day conditions, most trout waters are being subjected to extremely heavy fishing. In other words, many of the trout stocked in such areas are taken by the fishermen and this very fact serves to increase the rainbow's desirability as a fish for stocking purposes. It is a ready feeder, rising particularly well to the artificial fly, and leaves little to be desired from the angler's viewpoint. By the time these trout reached an age when their migratory habits might result in their leaving the stream to which they were introduced, many would have furnished a maximum of sport for the fishermen.

The primary objective in establishing any game fish, notwithstanding the fact just mentioned, however, is permanence. It is to be assumed that fast and turbulent waters flowing into deep reservoirs or artificial lakes in which the rainbow trout might winter would be of direct advantage in solving the migration problem of the species. When such streams have been made proving grounds for establishment of the rainbow trout in our waters, the effort involved should be extremely worthwhile.

At the new Spring Creek trout farm near Bellefonte, Centre county, exceptional success has attended the raising of rainbow trout. The rapid growth of fingerlings on this property has already insured a splendid location for producing the rainbow crop. It remains to give this splendid fighting fish a real opportunity to prove its adaptiveness to Pennsylvania waters. May it thrive and provide additional thrills aplenty for our anglers.



Artificial Fly, Leader and Reel

Second of a series of articles concerning the origin of fishing tackle

ESSENTIAL features of every modern fly-fisherman's equipment, the dainty, fragile-appearing artificial fly, light weight single action reel and leader of silk-worm gut are linked automatically in the mind of a fisherman with the split bamboo fly-rod. Of these three accessories to fly-fishing equipment, the artificial fly has the most interesting history. First known reference to it occurs in a work by Martial, 43-104 A.D. This poet of ancient times wrote:

*"Who has not seen the scarus rise,
Decoy'd and caught by fraudulent flies?"*

More detailed is the account on fly fishing which appeared in "De Natura Animalium," a work originally written in Greek by Aelian, Latin author during the early part of the third century. It follows:

"I have heard of a Macedonian way of catching fish, and it is this: Between Beroea and Thessalonica runs a river called the Astracus, and in it there are fish with spotted (or speckled) skins; what the natives of the country call them you had better ask the Macedonians. These fish feed on a fly which is peculiar to the country, and which hovers over the river. It is not like flies found elsewhere, nor does it resemble a wasp in appearance, nor in shape would one justly describe it as a midge or a bee; it imitates the color of the wasp, and it hums like a bee. The natives call it Hippouros. As these flies seek their food over the water, they do not escape the observation of the fish swimming below. When, then, a fish observes a fly hovering above, it swims quickly up, fearing to agitate the river, lest it should scare away its prey; then coming up by its shadow, it opens its jaws and gulps down the fly, like a wolf carrying off a sheep from the flock or an eagle a goose from the farm-yard. Having done this, it withdraws under the rippling water. Now, though the fishermen know of this, they do not use these flies at all for bait for the fish; for if a man's hand touch them, they lose their color, their wings decay and they become unfit for food for the fish. For this reason, they have nothing to do with them, hating them for their bad character; but they have planned a snare for the fish, and get the better of them by their fisherman's craft. They fasten red (crimson red) wool round a hook, and fit on to the wool two feathers, which grow under a cock's wattles, and which in color are like wax. Their rod is six feet long, and the line is of the same length. Then they throw their snare, and the fish, attracted and maddened by the color, comes up, thinking, from the pretty sight, to get a dainty mouthful. When, however, it opens its jaws, it is caught by the hook, and enjoys a bitter repast—a captive."

The gentle prioress whose name occupies an immortal niche in angling annals with that of Izaak Walton, Dame Juliana Berners, discussed fly-fishing as an art well

known in 1496. She observed in her "Treatyse of Fysshynge with An Angle."

"Thyse ben the xij flyes wyth whyche ye shall angle to ye tought & grayllyng; and dubbe lyke as ye here me tell."

In her description she speaks of "The donne flye, another donne flye, the stone flye, the yelow flye, the black louter, the donne cutte, the maure flye, the taudy flye, the waspe flye, the shell flye, and the drake flye," and specifies the month in which each of these flies is most effective. For instance: "In the begynnyng of Maye, a good flye, the body of roddy wull & lappid abowte wyth blacke sylke; the wynges of the drake & of the redde capons hakyll."

The Reel

Probably the first mention of the reel appeared in Barker's *Art of Angling*, published in London in 1651. This comment follows:

"Within two foot of the bottom of the rod there was a hole made for to put in a wind, to turn with a barrell to gather up his line, and loose at his pleasure."

And again, in the second edition of his work which appeared in 1657:

"You must have your winder within two feet of the bottom, to goe on your rod made in this manner, with a spring, that you may put it on as low as you please."

Izaak Walton, patron saint of angling, also referred to the fore-runner of the reel in his *Compleat Angler*, second edition, London, 1655. On page 189, Chapter VII, under the caption "Observations of the

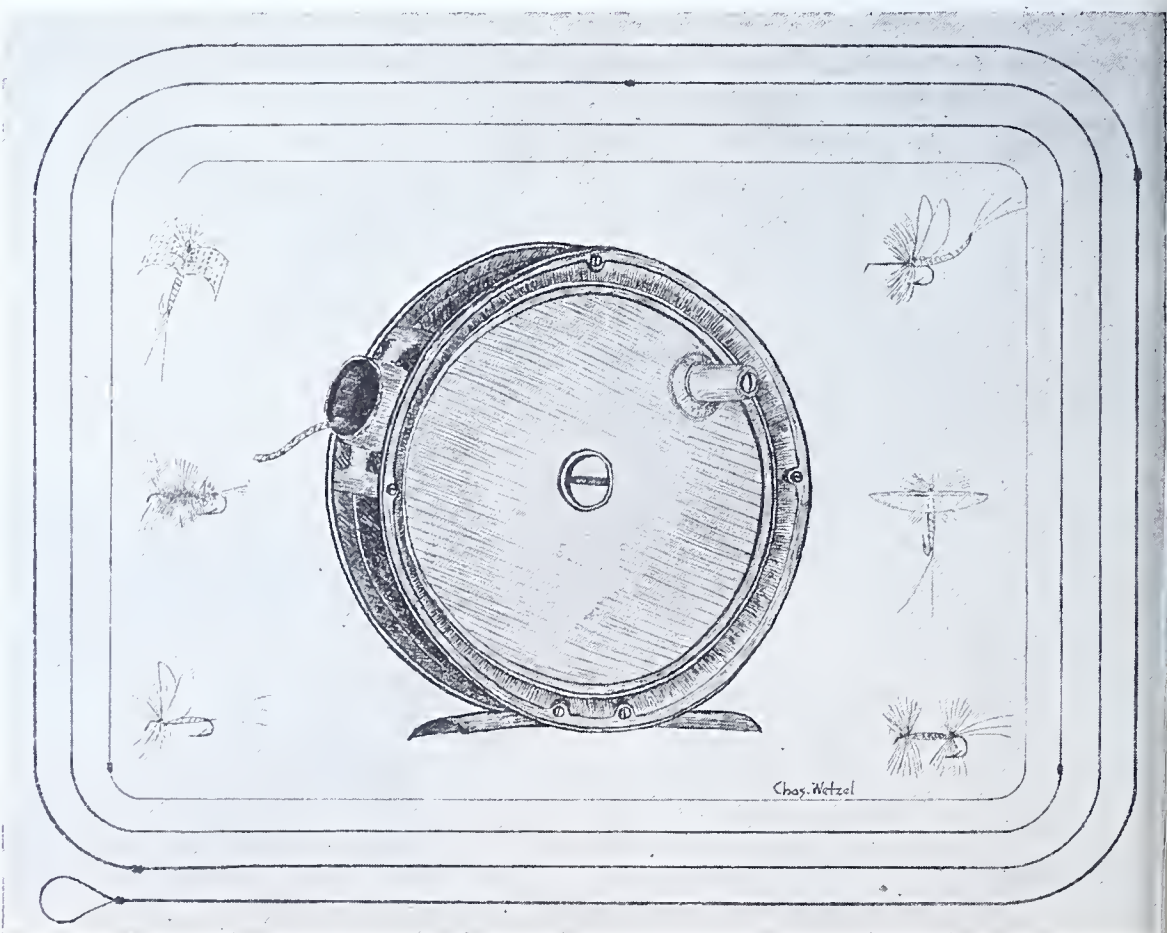
Salmon, with Directions how to Fish for Him" is the following passage:

"Note also, that many use to fish for a Salmon with a ringe of wire on the top of their rod, through which the line may run to as great a length as is needful when he is hooked. And to that end, some use a wheel about the middle of their rod, or near their hand, which is to be observed better by seeing one of them than by a large demonstration of words."

There is reason to believe, however, that while Walton made this mention of a "wheel" in his famous treatise, he may never have used one in fishing. At least, one gains that impression in perusing his advices on how to angle.

The reel or winch of that period is referred to by Col. Robert Venables whose treatise *The Experienc'd Angler; or, Angling Improved* was published in London in 1662. He offered the following directions for its use in trolling:

"The next way of angling is with a troll for the Pike, which is very delightful; you may buy your troll ready made, therefore I shall not trouble myself to describe it, only let it have a winch to wind it withall *** and then you may certainly conclude he hath pouched your bait, and rangeth abroad no more; then with your troll wind up your line, till you have it almost straight; then with a sharp jerk hook him, and make your pleasure to your content. ***** The Salmon takes the artificial fly very



Willow Planting Drive Off to Good Start



PHOTO BY LAMAR MUMBAR

OUTSTANDING support was given the Fish Commission's drive to increase shelter on Pennsylvania fishing waters through planting of willow slips in a splendid endorsement of the plan by J. Hansell French, Secretary of Agriculture. An ardent conservationist, Secretary French has urged farmers who have streams or other bodies of water on their property to join in the "Plant A Willow" campaign sponsored by the Board.

The cooperation of farmers and landowners is vital to the success of this movement and the Department of Agriculture, through the action of Secretary French, has contributed notably to this phase of the drive for improving fishing conditions.

Keen interest in this latest stream improvement move has been evinced by sportsmen in many sections of the state. Rapid growth of willow trees after the slips have been planted is a contributing factor to the adaptability of the willows for increasing shade and cover, particularly on trout

streams. Too many areas on meadow streams lack shade and shore growth and are therefore not inhabited by trout. The root system of the willow is extensive and serves to create additional cover above and below the water line.

Shade, however, is not the lone consideration in willow planting. Trout particularly need insect food as a major source of forage, and additional foliage along trout stream banks provides just that much more growth in which insect life may thrive.

Every fisherman can do his part in planting willow slips this spring by pruning a handful of the slips from large trees and sticking them in swampy or moist sections along the shores of too open areas. No great depth is required; simply insert the sharpened end of the slip into the ground so that it will stand upright in its base and be firm enough to maintain this position on windy days.

Willow planting will help your fishing.

well; but you must use a troll, as for the Pike, or he, being a strong fish, will hazard your line, except you give him length."

The Leader

That the gut leader may have been used in England as early as the 17th Century is evidenced by the following comment by Pepys in his diary (March 18, 1667):

"This day Mr. Caesar told me a pretty experiment of his angling with a minnikin, a gut-string varnished over, which keeps it from swelling, and is beyond any hair for strength and smallness. The secret I like mightily."

First of the fishing authors, however, to mention silk-worm gut in a treatise was James Saunders whose *Compleat Fisherman* was published in London in 1724. A comment referring to silk-worm gut appeared in the *Field* on January 2, 1864. The writer had this to say:

"About three months since, Mr. Geo. Bowness, of Bellyard, shewed me advertisement of his grandfather's, date 1760, announcing that the new article, silk-worm gut, is to be had there. This pretty nearly fixes the date of its introduction into the tackle trade."

CONCERNING NATIONAL STREAM PURIFICATION

In a recent letter to Hon. Kenneth A. Reid, Board member, United States Senator Augustine Lonergan writes concerning most recent developments in the drive for adoption of the Dern-Lonergan Plan:

"Acknowledgment is made of yours of March 19, and I wish to advise that I have been in close touch with the National Resources Board and learn that a report on the stream purification program will be available for Congress some time during the early part of April. Meantime my own legislative plan is in the hands of the Legislative Council, but no definite action will be taken toward the introduction of a bill until I determine what the program of the National Resources Board is."

SCHOOL CHILDREN STOCK TROUT

A group of students at the Shunk School, Sullivan County, have been carrying on commendable conservation work in that section of the State, according to Warden Myron Shoemaker, of Laceyville. These students, Dean, Melvin, Ellis, Harold and Martin Morgan, Sheldon Frey, Helen Caseman, Agnes, Clara, Jennie and Mildred Brown and Cleo Fuller live in rural sections of Sullivan County. During the past three years they have received young trout from the government and stocked them in the headwaters of Hogland Branch, Schrader Creek and Rock Run, all good trout streams.

Another item of interest from Shoemaker is a report concerning the record brook trout taken last year. In a previous report, he had notified us of the taking of a 16½ inch brookie from Schrader Creek, and the ANGLER records indicated that this topped all others. However, a 17-inch brook trout, caught in Elk Creek, Sullivan County, by Henry Hoppes, of Estella, shaded this old timer. Unfortunately, weight and girth measurements of Hoppes' catch have not been reported. At any rate, it's a whale of a brookie these days.

FISHING PROGRESS

Warden Del Broadbelt of Pocopson has sent us the following interesting skit on a lady angler's fishing excursion one day in February:

Friday, February 15, 1935, Mrs. C. E. Miles, West Chester, Pa.: "Dad, I want a new pair of rubber boots and a fishing license." At 11:30, Mrs. Miles had the boots, at 11:45 she had the license and at 12:30 she had lunch.

1:15: She makes two social calls. 2:00: She calls Dad to go fishing for suckers. 2:15: She has the bait dug and rearin' to go. 2:45: She arrives at Valley Creek. 3:00: She has caught three suckers.

3:10: She gets a strike that means business, fish runs with bait, and is hooked, and landed in the snow. Mrs. Miles wets her hands in the ice-cold water, gently presses this fish into the soft snow, and then returns the fish to the creek.

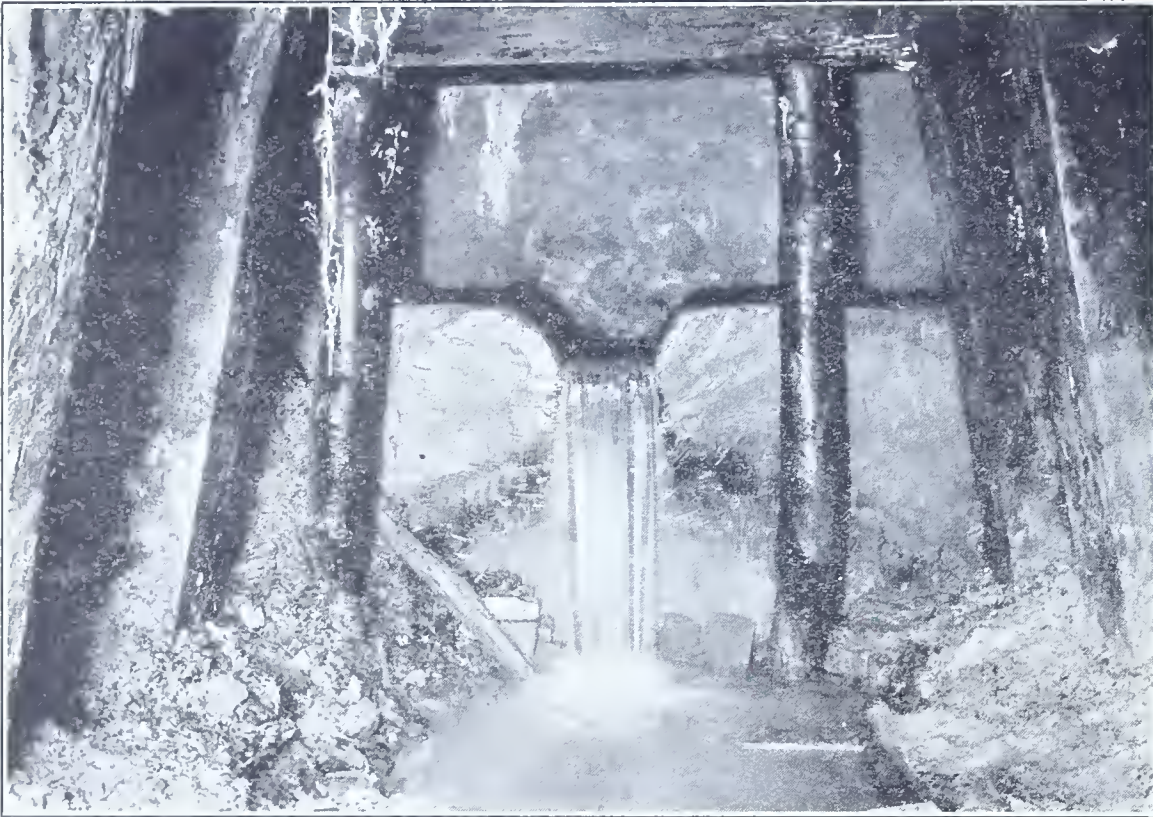
This fish was a BROWN TROUT 15½ inches long, according to the measurement of the impression in the snow.

3:30: She had caught five more suckers. 4:45: At home again warming up the frying pan.

Mine Sealing Effective on Slippery Rock Creek

THAT stream pollution CAN be cleared up if a little effort is put back of it has been effectively demonstrated on Slippery Rock Creek in Butler county. Word has been received from J. R. Rodgers, secretary of the Slippery Rock Sportsmen's Associa-

tion that mine sealing carried on last year on this stream has already greatly reduced the acidity of the water and that fish are now making an appearance in formerly badly polluted sections of the stream. Sportsmen's associations who furnished material



SEAL MADE INSIDE OF MINE ENTRANCE. THIS MINE WAS FORMERLY VERY HIGH IN ACID. NOW THE WATER IS ALKALINE AND CAN DO NO DAMAGE TO FISH LIFE. NOTE REDUCED VOLUME OF WATER. THE PHOTO WAS TAKEN DURING DRY SEASON.



AIR SEAL MADE AT ENTRANCE OF MINE, SHOWING DOUBLE DAM AND AIR TRAP. SHOWN IN PICTURE, LEFT TO RIGHT, J. R. RODGERS, SECRETARY, SLIPPERY ROCK SPORTSMEN'S ASSOCIATION, I. A. SMITH AND JOSEPH BRYDON, MEMBERS.

Our Cover Page

The ANGLER desires to express appreciation to LaMar Mumbar of Pennsburg for the splendid photo which serves as a basis for our April front cover.

for the mine sealing project were the Slippery Rock Sportsmen, the Lawrence County Sportsmen, Ellwood City Rod and Gun Club, Deer Hunters' Club of Harrisville, and Butler County Sportsmen. Labor was furnished by the Civil Works Administration.

Mr. Rodgers' letter follows in part:

"We would very much like to get some fish for Slippery Rock creek this spring. We requested several years ago that stocking of this stream be stopped on account of the mine drainage. As you know, we had 15 of the worst mines on the stream sealed a year ago under the CWA. Tests of water coming from each of these mines have been taken several times by the Bureau of Mines and the last analysis showed that four of them were completely alkaline, while the others had been reduced from 50 per cent to 80 per cent in acid content. Volume tests taken at Straubs Beach on No. 8 highway south of Slippery Rock showed the water practically alkaline. I observed fish as far north as Reisters last autumn. Natives tell me that it is the first time in years that fish have been seen there.

"Slippery Rock creek is in better condition today than it has been in years and the sealing of these mines is the direct cause for the improvement. It was once a famous fishing stream and will be again."

Bait-Fish Defined

The term bait-fish, as used in the Pennsylvania Fish Laws, means the following fish: All forms of minnows except fallfish, and all forms of killifishes and stone catfish.

PIKE STRIKES HOOKED BASS

A short time after Mrs. Juanita Hammond of Wyalmsing, R. D., had landed a five and one-half pound wall-eyed pike from the North Branch at Laceyville last fall, another mammoth of the pike species pulled an original caper, and Fay Rifenbury of Laceyville hauled in its victim, a mutilated bass, nine and one-half inches in length.

After settling the hook in the bass, Rifenbury started reeling it toward the boat. At a point about midway, however, it suddenly and strangely seemed to take on more life, pulling a great deal harder. After a hard battle, a giant wall-eyed pike was brought near to the boat, and just as the landing net was to be brought into play, disgorged the bass, which had been completely swallowed, and swam away.

Yoo Hoo, Mr. Wetzel!

Reflections of an Amateur Fly-tyer

IN the December issue of PENNSYLVANIA ANGLER, Mr. Charles M. Wetzel had a very scholarly and well illustrated article entitled "Elementary Fly Tying."

However?! = etc. — Quoting from said article "Fly tying is merely a mechanical process and is within the reach of everyone, etc."

There should be a law or something as I took this statement in earnest. The illustrations were so simple and plain that they made the operation seem *easy*. I thought, to myself, I have been more of a sap than I had imagined for instead of paying \$2.50 or \$3.00 a dozen for flies, I can tie them myself. I will save that money and also have a pleasant occupation for these dreary winter evenings. *I thought!!*

I procured a vise and, as instructed in the article, swiped thread and silk floss from the wife's sewing cabinet; took the wife's manicure scissors; (Mr. Wetzel had better not meet the wife) and started on a campaign for feathers. I acquired a turkey feather duster (from the attic), peacock feathers (from grandma's parlor), hackles and duck wing feathers from the poultry

man, wool yarn (from various women friends), and assembled them in a heap, closed the door to the den and started with enthusiasm.

The first operation is to put the hook in the vise. Easy, anyone could do it.

"Now wax about fifteen inches of the silk thread." The first few trials broke the thread or left the wax sticking to the fingers. (Business of thinking.) I finally put the wax in a piece of old kid glove. Now I only break the thread.

"Next cut two fibers of a red feather for the tail." (O. K.) "Have tinsel and yellow wool ready, wool thinned out at end as instructed."

"With winding silk lash tail pieces, tinsel and wool to shank of hook." (Well, Mr. Wetzel, in this operation I either had several fingers too many or one or two too few. What should be done here?) Finally had all items lashed in at approximately the right location. Wool yarn is wound on and then I discover that winding silk is still at other end of hook, unwind yarn. Yarn and winding silk finally arrive at right place.

Then (instructs Mr. Wetzel) "fasten with a half hitch." O! Boy! how to negotiate the half hitch and still keep winding silk taut. This is finally accomplished (with appropriate language) by making loop around fingers and holding with pencil point to keep tension until loop is drawn up.

"Next with the ribbing tinsel take a few turns around the hook at end of body." (Try it. It can be done but not the first few times. The tinsel breaks just at the time you think everything is "jake" or snarls in a way that would make Job a piker.)

"Then wind tinsel spirally around body." Easy, provided tinsel does not break. (This is one operation that on the whole really lives up to the quotation in the second paragraph.) "Clip off tinsel." The body is now made but it does not look like the one in the illustration.

"Now select a good stiff cock hackle." (How does one recognize such a hackle from the lot of feathers acquired in the manner aforementioned?)

Hackle is prepared as instructed and lashed into place with much thumbing and a fair amount of perspiration and profanity.

Now wind hackle around shaft of hook. The idea being to put it on edgeways and make it stand out from the hook in the approved manner. You will find that the hackle has other plans and will go on flat, break when least expected and do more things than you can imagine. Well, "If at first you don't succeed try, try again." After trying nearly two dozen hackles one is finally wound which, if not perfect, will pass.

Now "Fasten with two turns at butt and make two half hitches." Try it. The hackle slowly unwinds. You catch it in time and drop thread. The thread loosens.

Here is where you need your extra fingers most. You finally succeed in making your two half hitches. Of course, it is the first one that is tough.

Boys cut off silk with scissors, do not try to break it or you start a new fly.

The fly is now complete but as Mr. Wetzel foresaw is a somewhat ragged specimen. (*Somewhat.*)

I will not go into the making of the second fly described for when I got to the making of the wings I had too many fingers and exhausted my supply of feathers, which I now know should have been larger.

Pardon me I did not mention the tonching the head of the fly with shellac or varnish, but this operation is entirely in accord with the quotation in the second paragraph.

After you have gone through all this as I have, look again at Mr. Wetzel's illustrations and you will probably try again—on another day.

One of the worst problems is how to get scraps of hackle, wool, thread, etcetera off the floor as the vacuum sweeper has little effect. My idea is to wax a piece of winding silk and trail it over the floor a bit as it picks up everything from the table when you wish it would not.

Yours with hope,

CHARLES H. BOYD.



Just a Cigarette

By N. R. CASILLO

THE chill nights of early November and the cold fall rains caused the temperature of the water in Little Stony Creek to shrink steadily lower. Sodden leaves rafted in the rising eddies, swirled through riffles and sluices, and covered the brimming pools. The tang of decaying vegetation together with the strong yet pleasant effluvium of water-soaked humus mingled with the fresh smell of the re-vitalized water; water that was being purged of the long-accumulated debris of summer.

The rains continued until the ancient layers of forest humus, held intact by the fibrous roots of living trees and shrubs, became supersaturated. The creek rose higher, but not suddenly, for the tremendous quantities of water that had fallen were held in abeyance by a forest floor that could be compared only to a great sponge.

By the middle of November the rains ceased and the water cleared rapidly; the temperature however, continued to go steadily lower. It was at this time that the clan of *fontinalis*, the speckled trout, began to feel an uneasy urge. By twos and threes, and then by dozens they collected in every sizable pool where they remained for the brief space of a day or two before going onward. There was no general migration with the fish moving en masse, but little detached groups here and there, made up of trout of a uniform size would mill restlessly about for a short time and then breast the current at the head of the pools. With incomparable poise and muscular control they would remain motionless in a ten-mile torrent, then with arrowy swiftness they would zigzag their way into the still reaches of the pool above.

And thus by easy stages the clan finally reached the shallow gravel bars in the uppermost reaches of the stream. Bars that were protected on all sides by thickets of close growing willows; scrubby trees whose roots formed ideal hiding places under overhanging banks. At the head of the pool flanking the bars water tumbled over a fallen tree trunk before boiling into the spume below, carrying with it vast amounts of oxygen so necessary for the proper development of the eggs.

On the thoroughly washed gravel of a sunlit bar the male industriously and carefully fashioned a little nest, fanning it clean with his fins. Then he approached the female and rubbed his body against her side, after which she deposited a few eggs. The male immediately fertilized them by the ejection of milt. This process continued until the reproductive act was completed. The eggs laid ranged in number from five-hundred to upwards of two thousand, the number depending upon the size and age of the female.

Immediately after spawning, both parents, as is usual with all of the *Salmonidae*, de-

scended to the lower pools to feed upon the lavish abundance of aquatic insect forms with which the waters teemed; so that it was not long before their bodies were restored to the vigor and symmetry of the pre-spawning period.

Settled among the protective gravel, safe from scouring floods and smothering silt, the eggs awaited their long period of incubation, constantly bathed and stirred by that highly aerated water. There was nothing to fear from the thawing of deep snows, for the excessive water was easily absorbed by the spongy forest floor. From that natural reservoir it was judiciously released through hundreds of small feeders that kept the main stream at nearly a constant level. A drop of even a few inches would have proved hazardous to the precious load of the upstream bars; but unfailingly the stream had

prodigious quantities of microscopic life that abounded in the backwaters and quieter pockets of the creek. By mid-summer they had outgrown the narrow confines of their nursery pool and moved on downstream ever feeding and growing. Unfailingly, the abundant and beneficent waters of Little Stony had for centuries reared to maturity the matchless trout that lived in its blue-green pools.

One summer during the waning days of July, a red sun cleared the horizon to start its journey across a sky of monotonous clearness. Shimmering heat waves curled from a forest floor that had been crisped to tinder dryness by a six-weeks exposure to that molten sphere. During that unprecedented dry spell there had been an entire absence of any stirring air, so that leaves hung seared and curled and dust-covered on



safeguarded countless generations of *fontinalis* so that there was no apprehension to be felt in that respect.

Sometime in April, approximately five-months after they had been laid, the eggs began to hatch, and the tiny slivers of life with their protruding egg sacs and over-size eyes promptly settled among the gravel and pebbles of the stream bed where they remained for a few weeks. During that time the nourishment contained in the sacs was consumed. Then the more venturesome ones began wriggling upward toward the light until they became free-swimming. Still later, numbers of them could be seen wafted by the gentler currents, feeding upon the

trees that struggled for every drop of ground moisture. Yet, in spite of the entire absence of rain, Little Stony carried-on with its usual merry song; its slight drop in level being hardly perceptible thanks to the unfailing springs that had been charged during times of plenty by the spongy forest floor.

Late that afternoon a brisk breeze arose, a breeze that seemed to emanate from some gigantic furnace. It swept the length of Stony Valley like a devastating wave, causing the green twigs of hemlock to curl under its hot breath, while delicate fronds of a few surviving ferns cringed even closer to the cool ground under the impenetrable

shade of the hemlocks. A few trout half-heartedly feeding on the surface of the largest pools, sought the deepest holes as the torrid blast swept over the water.

At last that restless breeze found what it sought. A smoldering cigarette stub, half-hidden in the ready tinder of the forest floor, cast there by an unthinking angler. In a moment the ready sparks were quickened into a spreading flame. Acrid smoke shot upward and spread over the valley like some malignant growth. Under the impetus of the breeze, the dried humus burned with an intensity that was almost explosive. Ordinarily, among hardwoods, fire is confined chiefly to the ground, but in this case, the half-withered leaves of many of the trees took fire with a readiness that was appalling. When night descended, the stars peered through the thick smoke pall on a holocaust of terrifying magnitude. By the fitful light of blazing leaves or in the sudden glare of a stricken hemlock, could be seen many men desperately struggling against the pitiless odds of the mighty conflagration.

All through the night the fire roared on, the exhausted men now content to but keep it from spreading to the adjoining watersheds. At dawn graying skies looked down on the desolate remnants of what were once green-clad hills and beautiful valley. Charred and smoking tree trunks reared their naked lengths from blackened beds of coals and ashy dust; the turbid water of Little Stony was choked with all manner of debris, while the roots of trees lay exposed in all their ugliness.

As the day progressed the sky became more forbidding and by late afternoon came the rain. Long deferred it now seemed anxious to make up for its long absence by deluging the countryside with a terrific downpour. Unbroken by the leafless trees it poured its unbridled force on the half-burned humus, which turning to a black muck rolled in great sickening waves to the water of the creek below. Great chunks of it were bodily torn from the hillsides, exposing granite ledges that it had covered for centuries. Here and there in that wide desolation could be seen steaming stubs of snags, the fire still defiantly flaunting its banners in the face of that torrential rain. All through the night it continued and when it ceased at daybreak, the changes that it had wrought were unbelievable. In hundreds of places the granite had been stripped bare, while stark trees raised their gaunt heights against the lowering sky. Little Stony was a swollen torrent, black and sullen and running rampant over the lowlands.

That fall when the pitiful survivors (that had neither been driven from the stream or killed outright), of a once mighty race, heeded the spawning urge, they picked their way through newly formed and unfamiliar channels and through mazes of blackened logs and snags. None of them reached the beloved gravel bars, but spawned wherever they could. And where once tens of thousands of eggs had been deposited there were now only hundreds.

The exhausted parents once again de-

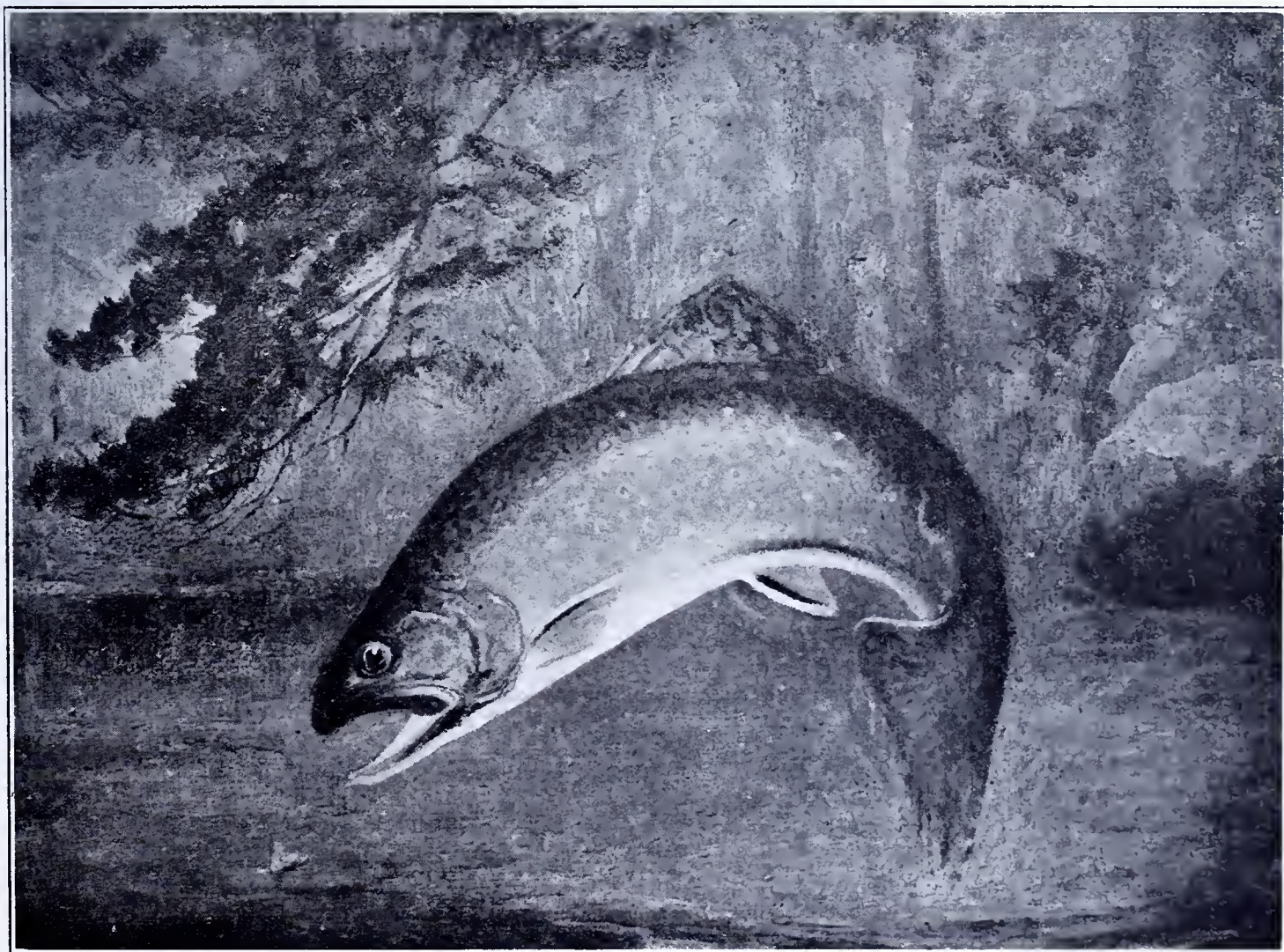
scended to the lower pools in order to rest and recuperate, but food was scarce so that they had to content themselves with occasional insects and still more occasional minnows. They never fully recovered from the physical losses incurred during the spawning season. Nursing a savage hunger they lurked in the scoured pools hopefully waiting for an infrequent mouthful of food.

The stream level was now affected by every little rain and thaw, running high and wild and carrying with it most of the few eggs that had been laid. Then again, a protracted dry spell or freeze-up would cause it to dwindle to a feeble ribbon barely creeping among the rocks of its bed.

By mid-summer the few spring trout that had survived the new hardships and vicissitudes, became herded together in a small pool where the inroads of cannibalism soon reduced them still farther.

The final chapter was written on an August day, when for some unaccountable reason the pool started to rapidly shrink until there remained only enough moisture to cover the smaller pebbles. The scant score of survivors desperately attempted to follow the life giving liquid into the cool sands into which it seeped. By mid-day the water had entirely disappeared and the tiny trout crisped beneath the burning sun; pitiful bits of twisted tinsel.

That night the full moon lingered long over the wasted valley for it gazed upon the last generation of a once mighty race, the matchless trout of Little Stony Creek.



FONTINALIS. THE BROOK TROUT

PAINTING BY JOHN BECK, WILLIAMSPORT

Famous Trout Streams; How to Reach 'Em

The Central Counties

For the angler who delights in fly fishing on larger trout waters, the north central counties, comprising that area of Pennsylvania with its northern fringe in Upper Lycoming county and extending southward through the mountainous region of Clinton, Centre and Union counties, is ideal. To most of our trout fishermen, waters of the calibre of Penn's Creek, Spring Creek, Fishing Creek, Young Woman's Creek, the Loyalsock and the Black Moshannon are synonymous with great trouting.

Many of the smaller streams in the north central counties are swift-flowing mountain brooks, cutting their way through wilderness ravines choked with brush and laurel. They offer great fishing for the angler who prefers to find his trout fishing in remote mountain country, and who is willing to overcome the handicap of interfering brush in making his casts into those hard-to-reach pools where brilliantly colored brook trout lurk. Typical of these waters are Rapid Run in Union County, some of the larger branches of Young Woman's Creek in Clinton, Garrity Run, Laurel Run and Mountain Branch, in Centre, and the upper waters of Larry's Creek and the Loyalsock in Lycoming County.

Lycoming County Waters

The fame of the Loyalsock, Lycoming County's largest trout stream, is not limited to Pennsylvania. Anglers who have fished it hail from many other states, for it is one of the largest trout streams on the eastern seaboard. Traversing a valley not over one-half mile in width, this stream offers fifty miles of good fishing water. In the lower stream, from Hills Grove to Montoursville, a distance of 25 miles, smallmouth bass and brown trout compete for the food supply. Good roads make it easily accessible at most points. Highway route 115, leaving route 111 at Montoursville and connecting with route 220 at Dushore at the headwaters of the Little Loyalsock, follows the stream much of the way.

In the Little Loyalsock, brook trout fishing is excellent. With resumption of the brown trout stocking program, the Fish Commission stocked brownies in the lower stream, that is the section below Hills Grove, while brook trout were distributed to the upper waters.

Lycoming Creek, in its upper waters, also ranks as a good trout stream. It may be fished by following highway route 111 from Williamsport, turning to route 14 at Trout Run and following it to Roaring Branch.

Streams in Clinton

Clinton County boasts Young Woman's Creek and Fishing Creek, two of the outstanding trout streams in Pennsylvania.

Rising at Tea Springs in East Sugar Valley, Fishing Creek flows through farmland and woodland for a distance of 38 miles, all of it excellent trout water. The stream course runs west from Tea Springs to Tylersville, north from Tylersville to Lamar, a distance of eight miles, then east for a dis-

tance of eight miles through the Nittany Valley to its point of juncture with Bald Eagle Creek. It may be reached over highway route 220.

In many respects it is like Spring Creek in Centre County, which is ranked as one of the greatest trout streams in the east. Fed by limestone springs having a constant flow, it is about equally divided between riffles and deep pools. Not only is it stocked heavily with trout, but it offers many natural advantages from the angle of forage and range. Trout taken as a rule are extremely heavy in girth and while brook trout predominate, brownies are caught frequently.

Of the larger mountain streams in Pennsylvania, Young Woman's Creek holds top



RAPID RUN, UNION COUNTY

rank as a trout producer. Heading in the famous Black Forest, it flows through mountain country for a distance of 20 miles to its point of juncture with the West Branch of the Susquehanna River at North Bend. It is accessible by auto over highway route 120, and its headwaters in the Black Forest may be reached from the old Coudersport Pike.

Young Woman's Creek has two large branches, one known as the Right Hand Branch, the other as the Left Hand Branch. Both branches and the main stream are heavily stocked with brook trout. Brown trout also are to be found in its deep pools, and nice mixed creels are taken occasionally.

Located about six miles from North Bend on the Right Hand Branch is a beautiful club maintained by the Renovo Lodge of Elks. Accommodations may be had at the club for any length of time, and anglers frequently make it their headquarters in fish-

ing the stream. Another fascinating angle to fishing Young Woman's Creek is an abundance of game in the territory it drains. To see deer or even bear while fishing is not an unusual occurrence. While some sections of the Branches are brushy, it is possible to fish a fly effectively in many of the pools.

Union County Trout Streams

Wide variety in trout fishing is afforded by the streams in Union County. Penn's Creek, recognized as one of the best known trout streams in the state, has many long deep pools and shallows affording abundance of forage and cover for its fish. It is classified as a brown trout stream under the survey, and thousands of brownies above legal six-inch size have been stocked in it since the close of last season. In the extreme upper section, for a distance of several miles below Penn's Cave, brook trout have been planted. The outstanding brown trout water extends from Weikert in Union County, to the Mifflin County line. In the vicinity of the Paddy Mountain tunnel, swift water, giant boulders and steep banks characterize the stream. In addition to brown trout distribution by the Fish Commission, the Paddy Mountain Fish and Game Association has conducted a splendid stocking program in Penn's Creek.

Penn's Creek in Union and Centre Counties may be reached by train at Weikert, Cherry Run, Paddy Mountain, Ingleby, and Coburn. By auto, it is easily accessible over highway routes 45 and 888. Leaving route 45 at Laurelton State Village, follow route 888 to Laurelton, Weikert and Cherry Run. If turning from route 45 at Woodward, take the road leading to Coburn, turning to another route leading to Ingleby. Good fishing is to be found on Penn's Creek either above or below Coburn.

Laurel Run, also classified as a brown trout stream, is one of the larger tributaries of Penn's Creek. Rising in Laurel Park, near Glen Iron, Union County, it parallels route 45 through the Seven Mile Narrows and flows through the town of Laurelton. It ranks as a favorite with brown trout fishermen, and over most of its course is a mountain stream. To reach it by railroad, take the Lewisburg and Tyrone Railroad to Ruthertown. By auto it may be reached via Mifflinburg to Laurelton on route 45.

Buffalo Creek, from the Willows at Mifflinburg to its headwaters, also ranks as an excellent trout stream. It has several good tributaries, the North Branch, Rapid Run and Spruce Run. It can be reached over route 45 via Mifflinburg. The North Branch, with most of its course in the Bald Eagle State Forest, can be reached by auto via Mifflinburg and Buffalo Mills. Rapid Run, one of the best brook trout streams in Union County, parallels route 95 over its entire length, and can be reached by way of Mifflinburg and Forest Hill. Spruce Run is accessible by way of Mazeppa and Sun Rise Church or School House.

Included in the larger trout waters of Union County is White Deer Creek. Rising in Centre County, the stream is easily reached in most sections by auto from source to its point of juncture with the West Branch of the Susquehanna River at White Deer. Above the White Deer Mountain Water Company dam, brook trout fish-



THE LITTLE LOYALSOCK, LYCOMING COUNTY

ing is excellent, while below it, the brownies predominate. In fact, brown trout are caught over the entire length of the stream. To fish White Deer, go to Watsonstown on route 14, then follow route 975 to White Deer post office. Information relative to the better fishing water may be secured at this point.

Centre County

Centre County, with a list of trout streams headed by picturesque Spring Creek, the Black Moshannon and Six Mile Run, ranks second to no trout fishing area in the state. Fed by limestone springs, its trout waters are consistent in flow, and offer an ideal combination of swift water and deep pools for the angler.

To fish Spring Creek, drive to Bellefonte, Centre County. The stream, which flows through the heart of the town, may be followed upstream by road for a distance of four or five miles to the Fish Commission's stream improvement and trout raising project. For the fly fisherman, this beautiful stream, flowing through woodland and meadowland, is ideal. Some of Pennsylvania's finest trout, brook and brown, are caught from it each year.

As a trout producer, the Black Moshannon also is a favorite with Centre County fishermen. Twenty-six miles long, the Moshannon has its point of juncture with the Big Moshannon Creek just where highway route 53 crosses the larger stream. In the fast water of the lower stream, numerous deep pools are to be found. Of the better tributaries, Rock Run, Myers Run, Halls Run and Benner's Run afford good fishing. Deep pools predominate on that section of

the Moshannon from Rock Run to Gordon, and as the stream flows slowly through this section, dry fly fishing for brown trout is particularly effective. Brook trout are taken frequently, but brown trout apparently have found in this stream an ideal home, and exceptional catches of brownies are made.

The Black Moshannon is accessible by auto over route 53 from Philipsburg, Centre County, by traveling northeast to the Moshannon Mountain, a distance of about 16 miles. It can also be reached at the Red Bridge or at Gordon by leaving route 53 at Moshannon, turning left at the cross road running west from Snowshoe. Gordon is located about 12 miles above the mouth of the stream. The headwaters may be reached over the Rattlesnake Pike from Philipsburg, after a drive of 10 miles to Kepharts Dam. The Black Moshannon, incidentally, is a mountain stream.

Six Mile Run, a swift mountain stream, belies its name, as it really has 12 miles of fine fishing water in its course. Hutton Run and Corbin Run, its largest tributaries, also provide good fishing. It is accessible from various points. Leaving Phillipsburg, follow the Rattlesnake Pike eastward, or from Port Matilda on route 5, turn right at the top of the mountain and take the C. C. C. road into Camp 119 at the headwaters. It can be reached from Winburne or Munson on the Munson Pike, which crosses the stream at the mouth. C. C. C. workers recently completed another road that parallels the stream for a distance of between four and five miles. This road runs from Camp 119 to the Rattlesnake Pike.

BACKS SNAKE KILLING

Just how abundant watersnakes are in many streams of Pennsylvania is illustrated by the following interesting communication from N. D. Eckert, secretary of the Boyertown Rod and Gun Association. Writing last summer, he had this to say:

"About four weeks ago, a friend and I set out on a fishing trip along Swamp Creek. Stepping out of the car and looking over a waterfall, to our surprise we saw eight watersnakes, only their heads visible, in a pile of old railroad ties on the stream bank. I always carry a rifle and shells loaded with mustard seed shot, which I find most

effective on snakes. In the course of a month, we killed 22 watersnakes in that one pile of old ties. But on August 6, we made the kill of kills, as I call it. On our way home from work we stopped and looked again at the pile of ties. Three watersnakes were killed and one exceptionally large one that we could not pull out, so we started digging. After removing it, we took from it a seven-inch catfish and thirty young snakes which we estimated would be born in a few days. I hope this short report will awaken some of our other fishermen to the necessity of ridding our streams of watersnakes."

THE IZAAK WALTON CLAN

If you belong
To that great clan
Who know the trails
That lead the way
To winding streams
Or to the shores
Of lake or pond
Where bass and trout
Or crappie play
You're sure to meet
Most any day
A passer-by
Who'll prove to be
A friend.
He may have reel
Of silver mold
Or bamboo rod
The finest sold
Or he may have
Just willow pole
A rusty can
With wiggly strands
But if he greets
The passer-by
"Hey! There!
What luck today?"
He's sure to be
A member true
Of Izaak Walton's
Angler Clan—
A friend.
It matters not
His name or age
He may be black
As ace of spades
He may be king
Or poor as Job
But if he hails
A passer-by
"Hey! There!
What luck today?"
He's sure to be
Disciple true
Of Izaak Walton's
Angler Clan—
A friend.

M. H. Dirks.

WON'T BE LONG NOW

By DON FINLEY

*June ain't so very far away,
When fishin's fishin' all the day,
And every anglin' fool on earth,
Is talkin' length, 'n' weight, 'n' girth.*

*Every fisherman tells 'bout THE monster
trout,
Three feet long, twenty pounds, and has the
gout,
Y'know, fish like that ain't easily ketched,
They try your nerves, 'n' make your arms
stretched.*

*But y'see, this here ketchin' trout demands
skill,
They don't take what you think, but take
what they will,
So if they're feedin' on nymphs, or perchance
a minner,
Even though you've got these baits, don't
plan on a fish dinner.*

BUSHEL'S OF BULLHEADS

During 1935, believe it or not, the Board distributed 108 solid bushels of baby bullhead catfish to suitable waters in Pennsylvania. That ought to please the boy fishermen, and plenty of their elders, too.

Paradise Regained

By DAVID J. THOMPSON

The writer and his fisherman friend, Earl Maize, of Pittsburgh, last year spent a day or two fishing the laughing waters of Spring Creek at what is now known as the "Paradise." The reason that this section of Spring Creek, which is located between Bellefonte and State College, is called "The Paradise" is that the State Board of Fish Commissioners has taken over about a mile of the stream in the beautiful Nittany Valley and improved it to such an extent that it is truly a perfect spot for the angler. The stream at this point was naturally a slow-flowing body of water hardly adaptable to trout, but through the installation of stone deflectors, as well as brush, boulders and logs placed therein, the condition of the

season. These tend to make the fishing and the trip sportier than ever. Another thing is that one may keep but two per day and they must be each ten inches in length.

To get back to the story, Maize and I pulled up to the office at the Paradise Friday morning, checked in and parked our car. The weather had the aspect of an impending storm, being dull, which delighted us. The weather had been so hot that the trout would not as much as look at anything thrown over them. Quickly we rigged up our rods and tying on a Royal Coachman fanwing each we laid them out by submerged logs and rocks. Nothing happened. And then the rain started. Only a few drops had hit the water until the rising

headed for some falls. The line was retrieved in time to save it there, too. He dove from end to end of the pool, never gaining an unnecessary inch of line and at each opportunity he was brought in closer. Finally, as he was about ten feet away and (I thought) headed for the dip net, he resorted to his last antic. With one great leap he was out of the water. Standing on his broad tail, he shook his head. Out popped the Royal Coachman. Splash! the mighty rainbow was gone. I have to admit he was too much for me. The writer got but one of his two trout but long will he remember that gleaming rainbow standing on his tail shaking out the hook on that perfect day in the perfect Fisherman's Paradise.

HEARING ON THOMPSON ANTI-POLLUTION BILL

Senate Bill 273, sponsored by Senator Benjamin H. Thompson, Westmoreland, and backed by public health and conservation advocates as highly essential to the drive for pure streams in Pennsylvania, was the issue in a hearing before the Senate Committee on Forests and Waters on Tuesday, March 26, in which opponents and backers of this vital piece of legislation presented their arguments.

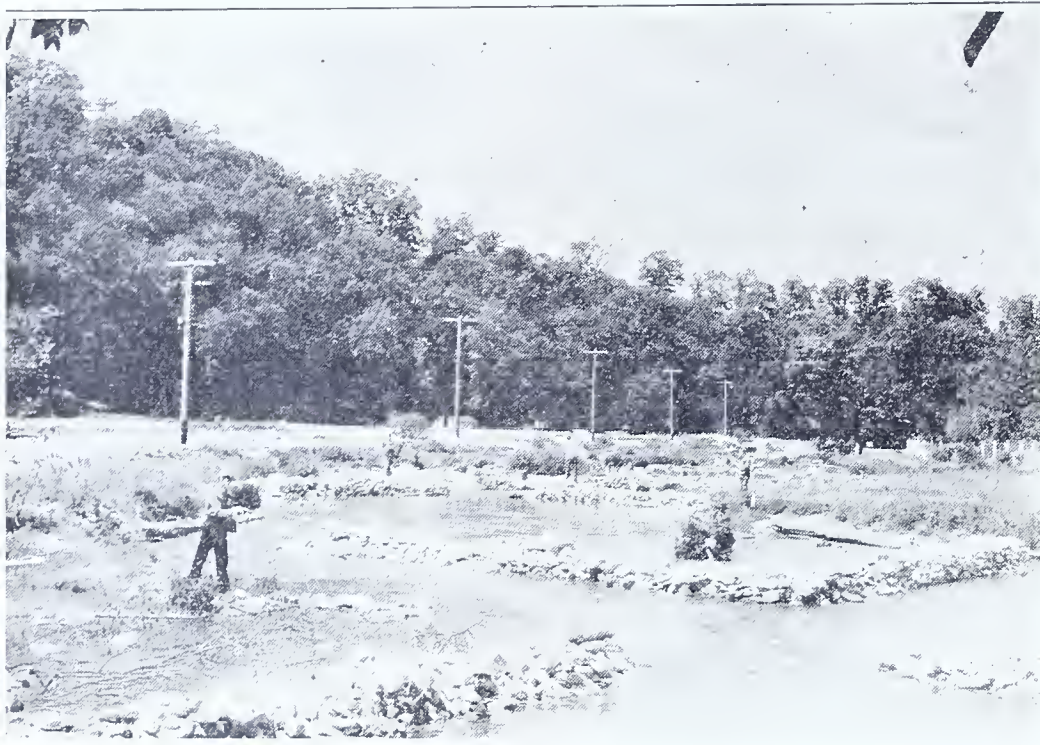
The public health and conservation angle was brilliantly brought to the fore at the hearing by Ralph L. Smith, Esq., of Pittsburgh, national director of the Izaak Walton League of America. In a splendid presentation of facts in connection with the Thompson Bill, he drew a brief history of the various pure streams bills that had been presented during the past ten years and pointed out that the present bill contains many of the features embodied in the old McCrossin Bill, Bidelspacher Bill and Lose Bill.

It was emphasized that the present bill was drafted after a careful study of these previous bills with due consideration for the objections that had been raised in past sessions to certain features of these bills.

The opponents to the present bill, he declared, had followed the same course as those objecting to previous bills in that they made sweeping denunciations and dealt in generalities. Further, that pure streams advocates repeatedly introduced bills which had been modified to answer the objections. But although the opponents agreed with the advocates of the bill that abatement of pollution was highly desirable, Mr. Smith asserted, they failed in this instance, as they did in all previous sessions, to offer one bit of constructive legislation. While denouncing anti-pollution legislation, they failed to offer any substitute or to submit specific suggestions for altering the present bill so that it would be agreeable to them.

PINE CREEK TROUT AND A 36-INCH EEL

An evening's fishing on Pine Creek last season yielded two big brown trout and a fine eel to F. J. Horn, of Galeton, according to Warden Dewey Grant, Galeton. One of the brownies measured 20 inches in length and the other 18. The eel was 36 inches long, and are those eels from the cold fast water of Pine Creek good eating!



stream has been changed to such an extent that it is now ideal trout water, being well stocked with large fish. The stream lies in a beautiful valley hemmed in on both sides by towering ridges covered with a full growth of hemlock, pine and other timber.

On the grounds are many springs, one of which has a capacity of 3,000 gallons of pure mountain water per minute. There are also spawning beds and rearing pools everywhere. In one rearing pool there are over a quarter of a million trout and there are exhibition pools where massive brook, brown, rainbow and albino trout lie in the cooling shade of overhanging flower boxes. The most common expression around these spots is, "How'd you like to hook into that one?" Then there is the beautiful stone administrative building, the gravel drive-ways and many other improvements. The personnel of the grounds is such that they make the visitor feel at home and welcome at all times, giving friendly advice on what the trout are taking. Of course, there are restrictions to fishing these waters. One may only use flies (artificial) and barbless hooks, no wading is allowed and but five trips may be made by any one angler in a

trout churned it into foam. They leaped and jumped and swirled everywhere one looked. It was but a second or two until we were each tied onto a big one. The writer, as usual, lost his after a few minutes of struggle, but Maize was successful in netting a beautiful eleven-inch rainbow which gave him all the sport he could ever wish for fishing. In all Earl caught five trout, keeping his allotted two and returning the other three unharmed to the waters.

Moving upstream, the writer stood on the end of a log out over the water, fishing a fanwing dry downstream in the heavy rain, contrary to all rules. With about thirty-five feet of line out he cast about the likely spots and then seeing a large swirl on the lower end of the pool placed the fly directly over it. Smash! Bang! the fish almost pulled the rod from his hand. The trout, a huge rainbow, which we would be safe in saying would tip eighteen or more inches, and probably weigh about two pounds, didn't care for that fanwing Royal at all after he had the hook through his jaw. A sudden lunge sent the line singing through the water as he made a rush for some roots. Just in the nick of time he was turned and

BETHLEHEM ANGLERS AWARDED FISH PRIZES

At the regular meeting of the Bethlehem Game, Fish and Forestry Association, of Bethlehem, Pa., the following members were awarded prizes for fish taken in the 1934 contest of the Association: Brook trout, first prize, length 14 $\frac{1}{8}$ inches, weight one pound, 2 ounces, caught in Monocacy Creek by Robert N. Williams; brown trout, first prize, length 21 $\frac{1}{4}$ inches, weight 3 pounds, 11 ounces, caught in Spring Creek by Oliver R. Welty, Jr.; second prize, length 19 $\frac{7}{8}$ inches, weight 2 pounds, 11 ounces, caught in Spring Creek by John E. Hanson; third prize, length 18 $\frac{1}{4}$ inches, weight 2 pounds, 4 ounces, caught in Delaware River by Clarence S. Goerlich; rainbow trout, first prize, length 15 inches, weight one pound, 5 ounces, caught in Pequest River, N. J., by William J. Rea, Jr.; largemouth black bass, first prize, length 20 $\frac{1}{4}$ inches, weight 4 pounds, 10 ounces, caught in Saylor's Lake by John Carl; second prize, length 19 $\frac{3}{4}$ inches, weight 4 pounds, 4 ounces, caught in Lake Wallenpaupack by P. E. McKinney; third prize, length 18 $\frac{1}{2}$ inches, weight 3 pounds, 8 ounces, caught in Lake Taminent by Kermit Ache; fourth prize, length 19 inches, weight 3 pounds 5 ounces, caught in Lake Teedyuscung by Richard F. Mease; smallmouth black bass, first prize, length 18 $\frac{3}{4}$ inches, weight 2 pounds, 13 ounces, caught in Delaware River by Clarence S. Goerlich.

MONTGOMERY SPORTSMEN HEAR STOCKING REPORT

Encouraging reports from chairmen of standing committees marked the regular meeting of the Montgomery County Fish, Game and Forestry Association executive group at the Chamber of Commerce rooms.

Questions of pertinent interest to sportsmen and conservationists were discussed at the session with Judge Harold G. Knight, president of the association, presiding.

E. F. Brouse, district forester, gave an interesting resume of the recent State Sportsmen's Federation meeting at Harrisburg which was attended by J. Hansell French, Secretary of Agriculture and Burd P. Evans, Vice-Presidents, of Trappe, and Mr. Brouse as representatives of the Montgomery association.

Reporting for the forestry committee of the local association, Mr. Brouse said the group would meet next week to make plans for the spring planting season activity.

The membership committee reported 15 new members.

George T. Herr, chairman of the fish committee, told of planting 60 cans of brook trout in French creek on December 27.

Other committee chairmen reporting included: L. B. Bachenheim, audit; F. A. Stickler, banquet; Lyman Kratz, pollution; Wilmer D. Cressman, publicity.

B. Frank Nyce, treasurer, reported a treasury balance of \$611.67.

Minutes of the annual meeting were read by J. Warren Ziegler, secretary.

If you hook an undersize trout, try to release it without taking it from the water. Careful handling of young trout will benefit your favorite stream.

LEHIGH SPORTSMEN AT ANNUAL SMOKER

The event of the year for sportsmen of Lehigh County, annual smoker of the Lehigh County Fish and Game Protective Association held in Moose Hall at Allentown on the evening of March 15, was featured by the award of prizes for the largest fish taken by members during the 1934 season.

The smoker this year was regarded as the best ever held. Moving pictures, addresses by Oliver M. Deibler, Commissioner of Fisheries, Wilbur Cramer, Divisional Game Supervisor, and Prof. J. T. Trembley, of Lehigh University topped a program arranged by George Zimmerman, secretary of the Association. The hall was packed to overflowing for the occasion.

The awards of fish prizes for the season of 1934 were as follows:

Brown Trout

First prize, a bamboo fly rod, the gift of the Association, awarded to Lonis R. Albright, Jr., 24 South Eighteenth Street, for a fish weighing 4 pounds, 4 ounces; length 21 $\frac{7}{8}$ inches; girth, 12 inches, caught April 16, 1934, in Spring Creek. Lure, worm.

Second prize, a bamboo fly rod, donated by C. Y. Schelly and Brother, to Oliver Welty, 925 Spring street, Bethlehem, for a fish weighing 3 pounds, 11 ounces; length 21 $\frac{1}{2}$ inches; girth, 11 $\frac{3}{4}$ inches, caught in Spring Creek, July 2, 1934. Lure, water worm.

Third prize, a fly rod, the gift of the Association, to Charles O. George, 553 Park street, for a fish weighing 3 pounds, 4 ounces; length, 21 inches; girth, 10 $\frac{3}{4}$ inches, caught May 3, in Big Bushkill Creek. Lure, worm.

Fourth prize, a trout creel, the gift of the Association, to Robert Carl, 540 Emaus Avenue, for a fish weighing 3 pounds; length, 20 $\frac{1}{2}$ inches; girth, 10 inches. Caught, April 19, in the Little Lehigh Creek. Lure, artificial minnow.

Rainbow Trout

First and only prize, a fly rod, donated by Milo M. Miller, County Treasurer, for a fish weighing 2 pounds, 10 $\frac{1}{2}$ ounces, length 19 $\frac{1}{2}$ inches; girth, 11 inches. Caught April 16 in the Little Lehigh Creek. Lure, worm. Awarded to Warren Yeakel, 435 Walnut Street.

Small-mouthed Black Bass

First prize, a silver-plated level-winding reel, donated by David E. Serfass, prothonotary, to Elias S. Wismer, Quakertown, for a fish weighing 3 pounds, 4 ounces, length 19 $\frac{1}{2}$ inches; girth, 12 $\frac{3}{4}$ inches. Caught, August 30 in Neshaminy Creek. Lure, live chub.

Second prize, a steel casting rod, donated by the M. C. Ebbecke Hardware Co., to Ernest C. Laudenslager, 842 North Ninth Street, for a fish weighing 3 pounds, 4 ounces; length, 18 inches; girth, 12 $\frac{1}{2}$ inches. Lure, spinner.

Large-mouthed Black Bass

First and only prize, a bamboo casting rod, the gift of Sears & Roebuck Co. to Ernest R. Benninger, 706 Fifth Avenue, Bethlehem, for a fish weighing 5 pounds; length, 19 $\frac{7}{8}$ inches; girth, 13 $\frac{1}{2}$ inches. Caught September 3, in Lake Wallenpaupack. Lure, small minnow.

Pickereel

First prize, a steel casting rod, donated by Oliver H. Peter, Sheriff, to A. J. Lauster,

905 North Seventh Street, for a fish weighing 5 $\frac{1}{2}$ pounds; length, 27 $\frac{1}{4}$ inches. Caught, August, in Peck's Pond. Lure, spoon.

Second prize, a bamboo casting rod, donated by M. S. Young and Company, to Harold K. Helm, 35 South Tenth Street, for a fish weighing 4 $\frac{1}{2}$ pounds; length 27 $\frac{3}{4}$ inches. Caught September 22, in Peck's Pond, lure, plug bait.

Third prize, a fine casting line, the gift of the Association, to Charles O. George, 553 Park street, for a fish weighing 4 pounds; length, 25 inches; girth 11 inches. Lure, spoon. Caught July 1, in Peck's Pond.

Pike Perch

First and only prize, a level-winding reel, donated by Robert L. Plarr, president of the Association, to Ernest R. Benninger, Bethlehem, for a fish weighing 7 pounds, 14 ounces; length, 30 inches; girth, 15 inches. Caught, November 20, in Lake Wallenpaupack. Lure, bug spinner.

Blue Gill Sunfish

First and only prize, a tackle box, the gift of the Association, to Ernest R. Benninger, Bethlehem, for a fish weighing 10 $\frac{1}{2}$ ounces; length, 10 inches; girth, 9 $\frac{1}{4}$ inches. Caught, June 29, in Saylor's Lake. Lure, small helgramite.



SETH SAYS

It beats all heck how a feller gits the fishin' fever jest afore openin' day o' trout fishin'. Me an' Jerry Tims got a-talkin' a couple weeks back an' Jerry sez as how he's jest no good

round his place these here spring days. I jest git sort o' mopey, sez he, an' first thing I'm figgerin' ways o' workin' inter a good trout hole. An' now, sez he, Seth you git thet pole o' yours an' we'll go a-fishin' fer suckers. Thet oughter help some.

By gorry, Jerry hed some o' the nicest red worms I seed in a week o' Sundays, an' the crick was jest milky like an' high. Our sucker fishin' hedn't been none too good early this year. I reckon mebber the snow water hed a lot ter do with it. So I jest couldn't but help him with his fishin' even ef I did git some sour looks from the wife who sez this here fishin' o' mine upsots work about the place consid'able.

Jerry's hunch that it oughter be a good sucker day couldn't a been better. The run hed jest started right an' by heck we musta throwed our lines right plumb in the center of an all-fired big school o' whoppin' big suckers. First off, Jerry's line started jerkin' business-like an' he hooks an' lands a sucker thet'd weigh three pounds anyhow. Them red worms sure did the trick, fer inside o' half a hour, we hed six big suckers apiece. Then we quit, fer ter take more fish o' any kind then a feller needs is downright hoggish.

Anyways, we took the edge off our itchn' ter go a-trout fishin' on the suckers, an' now I'm a-hopin' ter be able ter tell the boys next time ef I caught thet old speckled trout thet's fooled me fer two years in a row.

List of Trout Streams Stocked During 1934-35

For the information of trout fishermen, the ANGLER publishes the following complete list of trout waters in the various counties that were stocked with trout above legal six-inch size for the 1935 season:

Adams—Toms Run, Carbaugh Run, Little Marsh Creek, Conewago Creek, Conococheague Creek, East Branch of Little Antietam Creek.

Armstrong—Glade Run, Patterson Run, Cornplanter Run, Mill Run, Hauling Run, North Fork of Pine Creek, Scrubgrass Creek.

Bedford—Flintstone Creek, Laurel Run, Yellow Creek, Bobs Creek, Deaner or Kinzey Gap Run, Beaver Creek, Potter Creek, Three Springs Creek, Sherman Valley Run, Cove Creek, Deeters Run, Shavers Creek, Cumberland Valley Run, Raystown Branch Juniata River, Wills Creek, Buffalo Creek.

Berks—West Branch Pine Creek, Swamp Creek, Pine Creek, Northkill Creek, Trout Run, Moselem Creek, Mill Creek, Hay Creek, Northwest Branch Perkiomen Creek, Indian Creek, Scott Run, Furnace Run, Rauch Creek, West Branch of Pine Creek.

Blair—Bobs Creek, Bald Eagle Creek, Canoe Creek, Shaw Run, Vanscoyoc Creek, Big Fill Run, South Poplar Creek, Clover Creek, Sandy Run, Blair Gap Run, Bells Gap Run, Tipton Run, Piney Creek, Frankstown Branch Juniata River.

Bradford—Towanda Creek, Schroder Creek, Daggetts Creek, Mill Stone Creek, Seeley Creek, South Creek.

Bucks—Cooks Creek, Beaver Run, Tinnicum Creek.

Butler—Cornplanter Run, Black Creek, Hogue Creek, Little Buffalo Run, North Branch Bear Creek, Bear Creek, Chauncey Run, McMurrays Run, North Branch Slippery Rock Creek, Little Connoquenessing Creek, Silver Creek, Thorn Creek.

Cambria—Bens Creek, Little Conemaugh River, Big Laurel Run, Big Killbuck Run, Saltlick Run, Cedar Run, South Branch Blacklick Creek, Spring Run, North Branch Blacklick Creek, Stewart Run, Duclas Run, North Branch Little Conemaugh River, Bender Run, Findlay Run, South Fork Little Conemaugh River, Beaverdam Run, Mudlick Run, Hinkston Run, Rogues Harbor Run, Clearfield Creek, Chest Creek.

Cameron—Lower Jerry Run, Sinnemahoning Portage Creek, Sterling Run, Portage Creek, Lushbaugh Run, East Branch of Hicks Run, Hicks Run, Wykoff Run, Lick Island Run, Brooks Run, Clear Creek, Mix Run, Driftwood Branch.

Carbon—Drake Creek, Buckwa Creek, Wild Creek, Fawn Run, Aquashicola Creek, Mauch Chunk Creek, Stoney Creek, Quakake Creek, Hayes Creek, Hickory Run, Big Bear Creek, Hunter Creek, Mud Run, Pine Creek, Lesley Run, James Run, Pohopoco Creek, Wild Creek, Hays Creek.

Centre—Laurel Run, Little Moshannon Creek, Benner Run, Pine Creek, Potters Stream, South Fork of Beech Creek, Spring Run, Six Mile Run, Galbraiths Gap Run, Creek, Logan Branch, Elk Creek, Rapid Run,

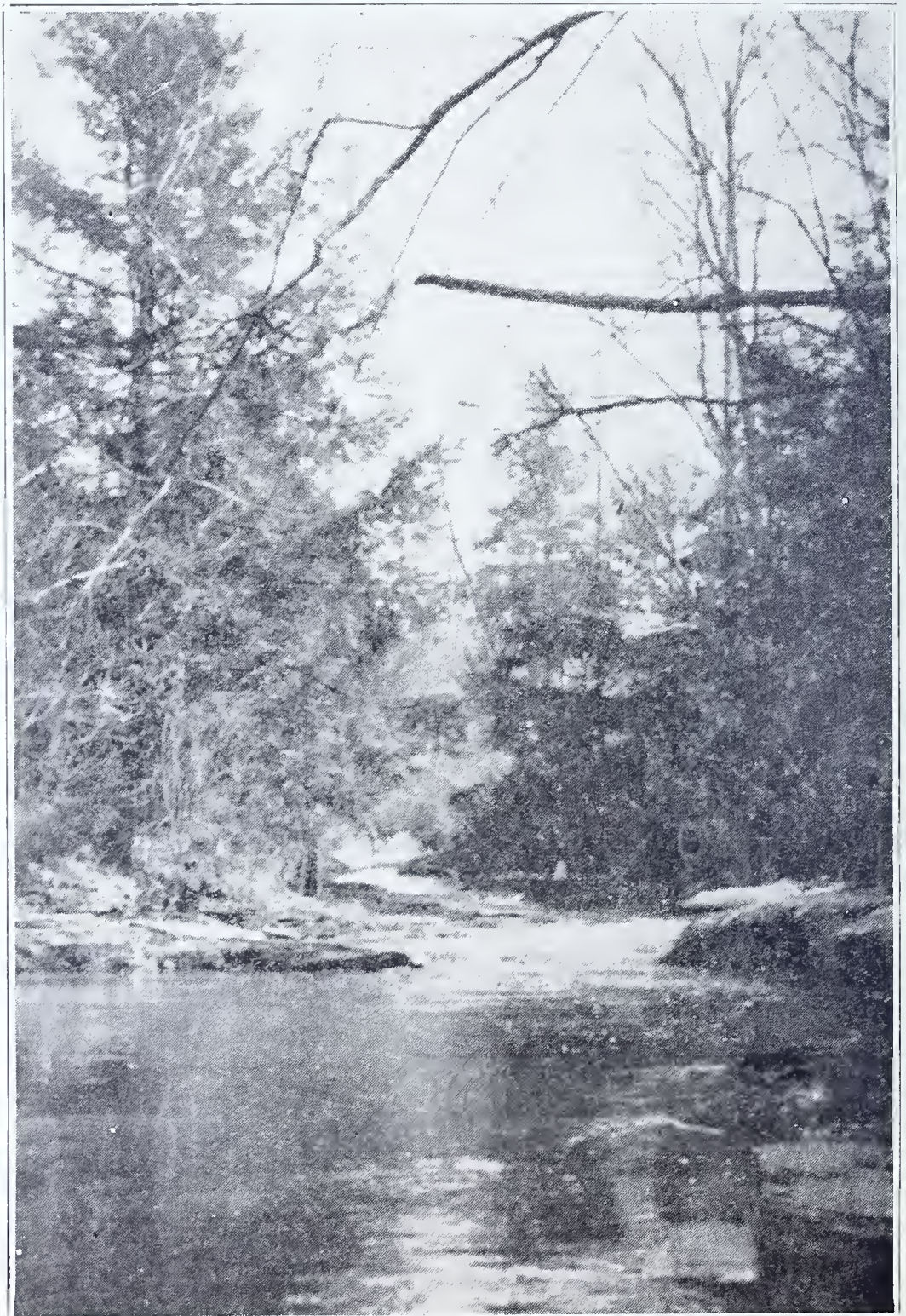
Branch Big Run, Mountain Branch, Pine Little Fishing Creek, Penn Creek, West White Deer Creek, Synagogue Stream, Cherry Run, Big Sandy Run, Wallace Run, Roaring Run, Marsh Creek, Fields Run, Cold Stream, Sinking Creek, Black Bear Run, Pleasant Gap Stream, Lick Run, Spruce Creek, Hostler Dam on Half Moon Run, Bald Eagle Creek, Poe Creek.

Chester—Rock Run, Pusey Run, Birch Run, Doe Run, Buck Run, Black Horse Run, White Clay Creek, Two Log Run, Birch Run, Valley Creek trib. Schuylkill River, Chester Creek, Lyndell Creek Valley Creek trib. Chester Creek French Creek.

Clarion—Coleman Run, Step Creek, Buck Creek, Toms Run, Deer Creek, Little Toby Creek, Mahler Run, Reyner Run, Paint Creek, East Sandy Creek, Little Piney Creek, Mill Creek, Piney Creek.

Clearfield—Sandy Lick Creek, East Branch Muddy Creek, Upper Three Runs, Deer Creek, North Wilmer Run, Curry Run, South Witmer Run, Trout Run, Montgomery Creek, Medix Run, Wilson Run, Bennetts Branch Sinnemahoning Creek, West Branch Montgomery Creek, Bell Run, Anderson Creek, Mountain Run, Mosquito Creek, Sandy Creek, Whiskey Run, Hackenbury Run, Gifford Run, Sawmill Run, East Branch Mahoning Creek, Moshannon Creek, Little Laurel Run, Bigler Run, Laurel Run, Little Clearfield Creek, Lick Run, Sugar Camp Run.

Clinton—Big Fishing Creek, Tangascootack Creek, Right Branch of Young Woman's Creek, West Branch Young Woman's Creek, Chatham Run, Cedar Run, Cooks Run, Twin



MILL CREEK, SULLIVAN COUNTY, A BROOK TROUT STREAM

Run, North Branch Tangascootack Creek, Kettle Creek, Monument Run, Big Run, Rattlesnake Run, Backer Run, Long Run, Beaverdam Run, Trout Forks, Hammersley Fork, Hyner Run, Cherry Creek, Paddy Run, Swamp Branch of Big Run, Middle Branch of Big Run, Lick Run, Antis Creek.

Columbia—Fishing Creek, West Creek, West Branch Fishing Creek, Coles Creek, Mugser Run, Little Fishing Creek, Roaring Creek.

Crawford—Federal Creek, McLaughlin Run, Muddy Creek, East Branch of Muddy Creek, Middle Branch of Sugar Creek, Patrick Run, Gravel Run, North Branch Woodcock Run, Sterus Run, North Branch of Middle Branch of Sugar Creek, Brannon Run, Kelly Run, Mosey Run, Negus Run, Wolf Creek, Stewart Run, West Branch Cussewago Creek, Sandy Creek, Thompson Run, Little Sugar Creek.

Cumberland—Big Springs Run, Oldtown Run, Mountain Creek, Silver Springs, Bird Run, Green Springs, Hogestown Run, Cockleys Run, Alexandria Spring Run, Mountain Rock Run, Yellow Breeches Creek, Letort Spring, Mountain Creek.

Dauphin—Manada Creek, Clarks Creek, South Fork Powell Creek, Stoney Creek, West Branch Rattling Creek, East Branch Rattling Creek, Rattling Creek.

Delaware—Ridley Creek.

Elk—East Branch Spring Creek, East Branch Millstone Creek, Mosquito Creek, Paige Run, Spring Creek, Wolf Lick Run, Bear Run trib, Toby Creek, East Branch Hicks Run, West Branch Kersey Run, Crooked Creek, Bear Creek, Maxwell Run, Big Run, Kersey Run, East Branch Clarion River, Laurel Run, Trout Run, Medix Run, Hoffman Run, Bogy Run, Vineyard Run, Wilson Run, South Branch Straight Creek, Bear Run trib, West Creek, Belmuth Run, Wyncoop Run, Island Run, Mohan Run, Hunter Run, Hicks Run, Straight Creek, Mix Run, Big Mill Creek, West Clarion Creek, Driftwood Branch.

Erie—Little Comeauttee Creek, Crooked Creek, Bear Run, South Branch French Creek, Beaver Run, East Branch LeBoeuf Creek, Black Creek, Trout Run.

Fayette—Mill Run, Buck Run, Little Sandy Creek, Big Sandy Creek, Dunbar Creek, Mountain Creek, Feiks Run, Laurel Run trib, Big Meadow Run, Back Run, Rubles Run, South Fork Mountain Creek, Laurel Run trib, Youghiogheny River, Quebec Run, Ramcat Run, Big Meadow Run.

Forest—Bobs Creek, Lamentation Run, Bear Creek, Hemlock Creek, Coon Creek, Spring Creek, Salmon Creek, Beaver Creek, Watson Branch, Hunter Run, trib, Spring Creek, Blue Jay, Creek, West Branch of Blue Jay Creek, Tubb Run, Prather Run, The Branch or North Salmon Creek, Hunter Run trib, Allegheny River, Johns Run, Maple Creek, Otter Creek, East Hickory Creek, Little Hickory Creek, Ross Run, Fork Run, Little Salmon Creek, West Branch Millstone Creek, Little Coon Creek, West Hickory Creek, Hickory Creek.

Franklin—Conococheague Creek, East Branch Little Antietam Creek, Dennis Creek, Pinola Run, Trout Run trib, Conodoguinet Creek, Broad Run, Carbaugh Run, Red Run, Falling Springs, Trout Run trib, W. B. Conococheague Creek.

Fulton—Roaring Run, Oregon Run, Little

Anghwick Creek, Brush Creek, Little Creek, South Brush Creek, Wooden Bridge Creek, Spring Valley Run, Nine Mile Creek.

Huntingdon—Little Anghwick Creek, Greenwood Furnace Dam on East Branch Standing Stone Creek, Spruce Run, Nine Mile Run, Sadler Run, Laurel Run, Tatman Run, Black Log Creek, Shavers Creek, Sadler Creek, Licking Creek, Little Trough Creek, East Branch Standing Stone Creek, Standing Stone Creek.

Indiana—Mardis Run, Toms Run, Downey Run, North Branch Little Mahoning Creek, Little Yellow Creek, South Branch Twolick Creek, Little Mahoning Creek, Mudlick Run, Laurel Run, Brush Creek, Yellow Creek.

Jefferson—Laurel Run trib, Little Mill Creek, Cedar Run, North Fork Red Bank Creek, Clear Creek trib, No. Fork Red Bank Creek, Cathers Run, Callen Run, Rattlesnake Run, Little Mill Creek, Little Sandy Creek, East Branch Mahoning Creek, Big Run, Five Mile Run, South Branch of North Fork of Red Bank Creek, Laurel Run trib.

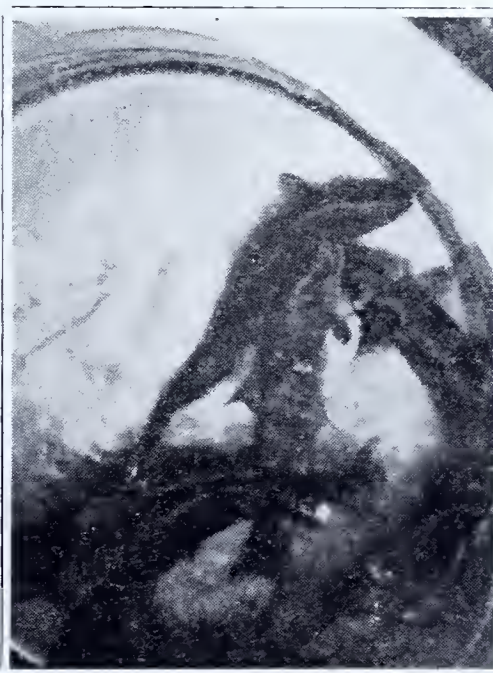


PHOTO BY DR. B. D. HETRICK
BROOK TROUT READY FOR
RELEASE

E. Mahoning Creek, Mill Creek trib, Sandy Lick Creek, Clear Creek trib, Clarion River, Mill Creek trib, Clarion River, Camp Run, Horam Run, Manners Run.

Juniata—Hower Run, Spanhauer Run, Lost Creek, Willow Run, Licking Creek, Liberty Valley Run, Horse Valley Run, Big Run.

Lackawanna—Gardners Creek, Lehigh River, Roaring Brook, West Branch of Wallenpaupack Creek, Pond Creek.

Lancaster—Fishing Creek, Big Chickies Creek, Long Run, Wissler Run, Little Conestoga Creek, Swar Run, Hammer Creek, Donegal Creek, Gladfelters Run, Middle Creek, Unicorn Creek, Seglog Creek, Rock Run Creek, Charles Run, Indian Run, Muddy Creek, Climbers Run, Stewarts Run.

Lawrence—Right Branch Little Neshannock Creek, Deer Creek, Jamison Run, Taylor Run, Big Run, Hottenbaugh Creek, Little Neshannock Creek.

Lebanon—Hammer Creek, West Branch Hammer Creek, Evening Branch or Gold Mine Run, Snitz Creek, Indiantown Run, Bachman Run, Millback Creek, Big Chickies Creek.

Lehigh—Trout Run, Jordan Creek, Little Lehigh River, South Branch of Saucon Creek, Trout Creek, Cedar Creek.

Luzerne—Harveys Creek, Nescopeck Creek, Bear Creek, Arnolds Creek, Bolwards Run, Little Shickshinny Creek, Bowmans Creek, Shades Creek, Philips Creek, Maple Creek, Wright Creek, Linesville Creek, Wapwallopen Creek, Meadow Run, Pine Creek, Stony Run, Lehigh River, Huntingdon Creek, Humlock Creek, Kitchen Creek.

Lycoming—Lycoming Creek, Little Muncy Creek, Turkey Run, Hogland Run, White Deer Hole Creek, Grays Run, Little Pine Creek, Larrys Creek, Muncy Creek, Mill Run, Nippenoise Creek, Spring Creek, Big Run, Lick Run, English Run, Blockhouse Run, McMurrin Run, Trout Run, Little Bear Creek, Upper Pine Bottom Run, Trout Run, Fourth Gap Run, Black Hole Creek, Roaring Branch, Pleasant Stream, West Mill Creek, Plunket Creek, Wallis Run, Rock Run, Slate Run, Loyalsock Creek.

McKean—Sugar Creek, Pennsylvania Pond, West Clarion Creek, Bell Run, Large Run, Comes Creek, South Branch Sugar Run, Marvin Creek, Portage Creek, Kinzua Creek, Chappel Fork, Fuller Brook, Two Mile Run, South Fork of Kinzua Creek, Seven Mile Creek, West Branch Tununguent Creek, North Branch Sugar Run, Willow Creek, West Branch Clarion River, Potato Creek, East Branch Tionesta Creek.

Mercer—Mill Creek trib, French Creek, Hanna Run, Swamp Creek, Mill Creek trib, Cool Spring Creek, Blocks Run, Little Sandy Creek, West Branch of Wolf Creek, Wolf Creek, Lackawannock Creek, Probst Run, Big Run, Sandy Creek, Deer Creek, Little Neshannock Creek, West Branch Little Neshannock Creek, Johnson Run, Mill Run, East Branch of Wolf Creek.

Mifflin—Lingle Run, Treaster Valley Run, Kishacoquillas Creek, West Branch Kishacoquillas Creek, Havice Creek, Tea Creek, McKinley Run, Musser Run, Strodes Mill Run, Licking Creek, Swift Run, Brookland Run.

Monroe—Buckhill Creek, Lake Creek, Timber Hill Creek, Big Bushkill Creek, Leavitts Branch, Forest Hill Creek, East Branch Tobyhanna Creek, Buckwa Creek, Tobyhanna Creek, Scott Run, Pennsylv Creek, McMichaels Creek, Pohopoco Creek, Middle Creek, Cherry Creek, Dotter Creek, Pocono Creek, Aquashicola Creek, Lehigh River, Brodheads Creek, Paradise Creek, Middle Branch Brodheads Creek, Sambo Creek.

Montgomery—Mill Creek, Deep Creek.

Northampton—Jacobus Creek, Mud Run, Coffetown Run, Little Bushkill Creek, Little Martins Creek, Wlatz Creek, Saucon Creek, Indian Creek, Hokendauqua Creek, Bushkill Creek, Monocacy Creek, Martins Creek.

Perry—Horse Valley Run, Laurel Run, Liberty Valley Run, Browns Run, Shermans Creek, Hustons Run, McCabes Run.

Philadelphia—Wissahickon Creek.

Pike—Middle Bushkill Creek, Dwarfkill Creek, Sanvantine Creek, Red Rock Creek, Twin Lakes Creek, Sawkill Creek, Mill Rift Creek, Kellam Creek, Big Bushkill Creek, Dingmans Creek, Saw Creek, Shohola Creek, Raymondskill Creek, Indian Ladder Creek, Little Bushkill Creek, Wallenpaupack Creek, East Branch Wallenpaupack Creek, Lackawaxen River.

Potter—West Branch Fishing Creek, Ding-

man's Run, Left Hand Branch Dingman's Run, Nelson Run, West Branch Pine Creek, Genesee Fork of Pine Creek, Cross Forks Creek, East Branch of Fishing Creek, Corbet Branch of West Branch of Pine Creek, Little Kettle Creek, South Fork of First Fork of Sinnemahoning Creek, West Branch of Portage Creek, First Fork of Sinnemahoning Creek, Long Run, Middle Branch Genesee River, Fishing Creek, Eleven Mile Creek, Cowanesque River, Trout Run, Nine Mile Run, South Branch Oswayo Creek, Cushing Creek, Bailey Run, Sartwell Creek, East Fork of First Fork of Sinnemahoning Creek, East Branch Portage Run, West Branch of Genesee River, Lyman Branch of West Branch of Pine Creek, Ludding Branch of Genesee River, Dry Run, Allegheny River, Pine Creek, Oswayo Creek, Kettle Creek, Mill Creek.

Schuylkill—East Branch Little Schuylkill River, Cold Run, Little Catawissa Creek, Evening Branch, Black Creek, Pine Creek or Lakeside Creek, Pine Creek tributary to Mahantango Creek, Beaver Creek, Spiese Run, Deep Creek, Bear Creek, Mahoning Creek, Fishing Creek, Flicker Creek, Big Run, Neifert Creek, Locust Creek, Rouchs Creek, Kombs Creek, West Branch Fishing Creek, Rattling Run, Tumbling Run.

Snyder—North Branch Mahantango Creek, Mitchells Run, Trout Run, Kuhn Hooven Run, Aigler River, West Branch Mahantango Creek, Krepp Gap Run, Swift Run.

Somerset—Kooser Run, Big Piney Run, Shafer Run, Sandy Run, Tub Mill Run, Elklick Run, South Fork of Benns Creek, Beaver Dam Run, Drake Run, Iser Run, Deeters Run, Breastworks Run, Negro Glade Run, Blue Hole Creek, Brush Creek, Jones Mill Run, Clear Shade Creek, Piney Run, Whites Creek, Wills Creek, Laurel Hill Creek, Flaugherty Creek.

Sullivan—Elklick Run, Lewis Creek, West Branch Fishing Creek, Sullivan Branch, East Branch Fishing Creek, Rock Run trib. Muncy Creek, Big Muncy Creek, Rocky Run, Lick Creek, Kettle Creek, Ogdonia Creek, Hogland Run, Rock Run trib. Lt. Loyalsock Creek, Lopez Creek, Pigeon Creek, Mill Creek, Elk Creek, Glass Creek, Double Run, Pole Bridge Run, Black Creek, North Branch Mehoopany Creek, Little Loyalsock Creek, Loyalsock Creek.

Susquehanna—Mitchell Creek, Nine Partner's Run, Gaylord Creek, Starrucca Creek, Harding Creek, East Branch Lackawanna River, West Branch Lackawanna River, Tunkhannock Creek, East Branch Tunkhannock Creek, Riley Creek, Tunkhannock Creek, Harmony Creek.

Tioga—Four Mile Run, Norris Brook, Long Run trib. Babbs Creek, Seely Creek, Hills Creek, Kettle Creek, Phoenix Run, Big Run, Bailey Creek, Tioga River, Mills Creek, Elk Run, Fall Brook, Long Run trib. Pine Creek, Cedar Run, Pine Creek.

Union—Block Run, White Deer Creek, North Branch Buffalo Creek, White Spring Run, Half Way Run, Spruce Run, Slide Hollow Run, Sheesley Run, Corl's Run, Rapid Run, Buffalo Creek, Beaver Run, Sand Spring Run, Bear Run, Spring Creek, Penns Creek, Laurel Run, Weikert Creek.

Venango—East Branch Sugar Creek, Hemlock Creek, Little Sandy Creek, Middle

Branch Sugar Creek, South Branch Sandy Creek, Richey Creek, West Pithole Creek, Tarkill Creek, East Branch Wolf Creek, Prather Creek, Cherry Run, East Branch Sandy Creek, Mill Creek, Stewarts Run, Lower Two Mile Run, Upper Two Mile Run, Horse Creek, Pithole Creek, Little Scrubgrass Creek.

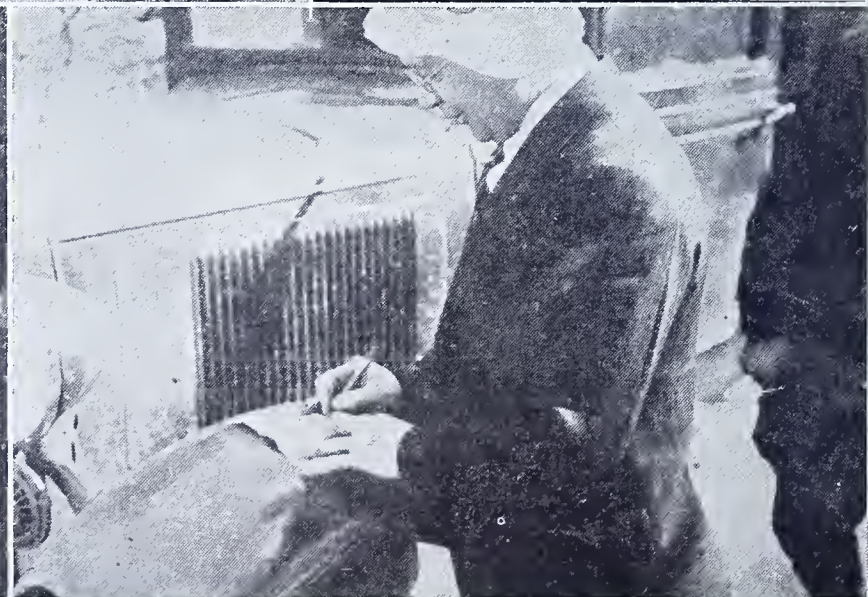
Warren—Pine Creek, Willow Creek, Minister Run, Rock Hollow Run, East Hickory Creek, Jackson Run, Irvine Run, Dunns Run, Farnsworth Creek, Little Brokenstraw Creek, Coffee Creek, Hemlock Run, Upper Sheriff Creek, Lower Sheriff Creek, Matthews Run, Mead Run, Ackley Run, Phelps Creek, East Branch of Caldwell Creek, Hammer Run, East Hickory Creek, Four Mile Creek, Arnot Creek, Ben George Creek, Tidoute Creek, McGuire Run, Perry McGee Run, West Branch of Caldwell Creek, Tionesta Creek, West Hickory Creek, Brown Run, East Branch Tionesta Creek, Caldwell Creek.

Wayne—Jones Creek, Wilcox Creek, Moss Hollow Run, West Branch of Lackawaxen River, Dyberry Creek, Middle Creek, South Branch Calkins Creek, East Branch Starrucca Creek, South Branch Equinunk Creek, Shehawken Creek, Waymart Branch Lackawaxen River, Big Branch Dyberry Creek, Crooked Creek, North Branch Calkins Creek, Equinunk Creek, Shad Pond Creek, Beaverdam Creek, Little Equinunk Creek, Calkins Creek, Lehigh River, Johnston Creek, Babbittville Creek, Wallenpaupack Creek, West Branch Wallenpaupack Creek, West Branch Lackawaxen River, Butternut Creek, Lackawaxen River.

Westmoreland—Camp Run, Pike Run, Powder Mill Run, Little Pucketa Creek, Loyalhanna Creek, Mill Creek, South Fork Mill Creek, Middle Fork Mill Creek, North Fork Mill Creek, Indian Creek, Roaring Run, Powder Mill Run, Furnace Run, tributary to Laughlinton Run, Furnace or McInnes or McGinnes Run, Baldwin Run, Shannon Run, Linn Run, Tub Mill Run, Jacobs Creek.

Wyoming—North Branch Mehoopany Creek, Meshoppen Creek, Mehoopany Creek, Bowmans Creek, West Branch Meshoppen Creek, Riley Creek, Leonard's Creek, Beaver Run.

York—Orson Run, Fishing Creek, Toms Run, Rehmayer Hollow Run, Leibs Creek, Otter Creek, Furnace Run.



AT TOP—C. S. WALTERS, CHAIRMAN OF FISH PROPAGATION COMMITTEE, BUTLER COUNTY SPORTSMEN'S ASSOCIATION, RECEIVES A CAN OF TROUT FROM THE FISH COMMISSION'S TRUCK. LOWER LEFT—RELEASING THEM AND AT RIGHT SIGNING FOR THEM. PHOTOS BY DR. B. D. HETRICK



TYPICAL WINTER SUCKER FISHING SCENES, SNAPPED ON THE UPPER CONOCOCHIEAGUE CREEK, FRANKLIN COUNTY. BY WARDEN C. V. LONG.

SUCKER BROKE LINE, BUT HE CAUGHT IT

Game Warden Bill Britten of Franklin County tells of a sucker fisherman on Licking Creek, late in February, who hooked into a sucker so large that it broke his line. Retrieving his line about fifteen minutes later, he hooked the same fish in the stomach and landed it. Trailing from the mouth of the fish was about 8 inches of line, hook and sinker that had been lost. Britten estimated the sucker to be better than 20 inches in length.

REVERIES AND HOPES

Blue skies. Deeper green reflection of deep green foliage on still waters. Peace. A ripple. A flash of gleaming fury. The battle is on.

At the sixth annual meeting of the Barque Club, in Dunmore, reminiscences vied with clouds of smoke. Against the pall, memories of big ones stood out vociferously and clearly. A battle of words fused with the battle of bass, pike, pickerel, rods and lines. From the white hot melting pot these were drawn (others were proudly drawn and almost shamefacedly cast back into the pot):

From the waters of Lake Wallenpaupack (Brink's Cove)

1931: Pickerel. Weight 6 pounds, 26 inches long.

1932: Perch catch. Largest 2½ pounds.

1933: Catch of 14 pickerel and black bass. Average weight 3 pounds. Largest bass, 4½

Fish Congregate in Improved Areas

In addition to advising us that dams and deflectors constructed on many trout waters of the North Tier have been holding up well this winter, Warden Dewey Grant of Galetton advances a most interesting reason for the belief that trout and other species have moved into such sections in large numbers.

"Last fall, in September and October," he writes, "the fish had already moved into the areas where improvement had been made by the CCC workers. This was borne out by the fact that all of the kingfishers on a stream would be found in such areas, and of course they were there because they found their food supply more abundant in such places."

pounds. Pickerel: weight 4¾ pounds; 25 inches long.

1934: Large catches of wall-eyed pike. Several weighing 5 pounds. We might mention here that it is the habit of the members of our club to return to the waters all pickerel under 15 inches; all pike under fifteen inches; all black bass under 12 inches. It is our opinion that fishing would be far better if all fishermen would practice this.

1935: With fondest hopes. And good fishing to all.

FEBRUARY STOCKING

Trout, brook and brown, averaging 7 inches in length, and minnows to serve as additional forage for game fish, featured stocking from the Fish Commission's hatcheries during February. Brook trout stocked numbered 10,800, brown trout 1600, and minnows 27,900. Following were streams stocked in the various counties:

Berks—trout, Mill Creek.

Bradford—trout, Schroder Creek.

Carbon—trout, Pohopoco Creek; minnows, Wild Creek, Pohopoco Creek.

Centre—trout, Little Fishing Creek.

Chester—trout, Birch Run.

Clinton—trout, Paddy Run.

Dauphin—trout, Stoney Creek.

Delaware—trout, Ridley Creek.

Lancaster—trout, Middle Creek.

Lycoming—trout, White Deer Hole Creek.

Monroe—trout, Laurel Run.

Northampton—trout, Waltz Creek.

Potter—trout, Nelson Run, East Branch Portage Creek, West Branch Portage Creek, Little Kettle Creek.

Sullivan—trout, Hogland Branch.

Tioga—trout, Seeley Creek, Phoenix Run.

Union—minnows, Halfway Dam.

SNAKE-KILLING SUGGESTION

Charles Boyd of Connellsville recently submitted a fine suggestion relative to killing water snakes. "After a snake has been killed," he writes, "above all things its body should be taken from the water. Throw it some place on the bank, preferably at a considerable distance from the stream."

CRAWFORD SPORTSMEN ENJOY FINE PROGRAM

Sportsmen from every nook and corner of Crawford county turned out in Meadville on March 25 as the annual meeting of the county branch, Sportsman's Council, was held.

Six hundred members crowded into the big American Legion rooms, while 200 more are estimated to have been turned away due to lack of accommodations.

Officers elected for the ensuing year were: Willard Deater, Meadville, president; Ivan E. Burkley, Cambridge Springs, vice-president; Dr. H. H. DeGrange, Saegertown, secretary; Charles Heckman, Meadville, treasurer. The group gave a missing vote of appreciation to E. A. Williams, Meadville, retiring secretary, for his fine work during the year. Deater and Heckman were re-elected.

District Game Protector Jay C. Guilford, of Oil City, and Robert McKee, of Titusville, district inspector of the State Department of Forests and Waters, spoke to the meeting, while four reels of hunting and fishing pictures from the Canadian National Railways were shown.

Arrangements were in charge of the Meadville division of the organization, with former Postmaster O. A. Speakman and Frank Hill heading committees.

Luncheon of "baked beans, potato salad, pickles, sandwiches and coffee" was served free to the whole gang—and, believe it or not, the finance committee actually showed a profit.

The county branch was organized in January, 1934, and has more than 1,300 members signed up for the 1935-36 fiscal year, beginning April 1.

AWARD PRIZES FOR SNAKE KILLING AND BIG FISH

Fishing interest was stimulated at the January and February meetings of the Perkiomen Valley Sportsmen's Association by award of prizes for snake killing and catches of the largest fish taken in a contest conducted during 1934, according to S. L. Horst, secretary of the Association. Following is his letter:

"As a bit of news:—We have a total membership of 123 adults and 15 juniors. Seven new members were enrolled at our February meeting. Our membership includes:—Summeytown, Green Lane, Spring Mount, Schwenksville, Graterford, Collegeville, Hatfield, Souderton, Lansdale and Philadelphia.

"At our January meeting we presented William Weirman, Schwenksville, with a .22 Winchester rifle for turning in the largest number of snake tails, a total of 64. One

of our Junior members claimed he killed about a hundred snakes but he failed to collect the tails.

"At our February meeting prizes were awarded for our membership fishing contest. A seven-dollar casting reel to W. W. Robison, Schwenksville, for the largest smallmouth bass, 4 pounds, 19½ inches long, 12½ inch girth caught with a stone catfish; eight foot fly rod to William Weirman, Schwenksville, for the largest carp, 26 inches long; largest largemouth bass to junior member, William Ivans, Delphi; awarded an eight foot fly rod, bass weighed 1 pound, 13½ inches long, 8¼ inch girth. Seven dollar casting reel to Ross Koons, Schwenksville, for the largest catfish, weight 2 pounds, 15¼ inches long, 9¾ inch girth. All fish were caught in the Perkiomen during the summer of 1934."

WATERSNAKE DRIVE

Word has been received from Warden Link Lender that the Williamsburg Sportsmen's Club, Blair County, have laid plans for an intensive drive to thin down the number of watersnakes on streams in that section of the state this summer. In view of their splendid stream improvement program carried through last summer, this drive should mean one real batch of bad news for watersnakes.



TROUT FISHING IN THE YELLOW BREECHES, CUMBERLAND COUNTY, ON OPENING DAY LAST YEAR

BOARD MEMBER TELLS OF GULF FISHING TRIP

Hon. Leslie W. Seylar, McConnellsburg, member of the Board of Fish Commissioners, sends us the following interesting account of a fishing trip on the Gulf of Mexico near St. Petersburg, Florida.

"It has occurred to me that perhaps some of our fishermen friends might enjoy reading an account of a day's fishing in the Gulf of Mexico so here goes.

"Our party numbering eight fishermen left Pass A Grille Monday morning, at 8 o'clock sharp, aboard the 36-foot launch *Goodie* in command of Captain Wye Goodie, experienced fisherman, sailor and all round athlete and good sport.

"The Gulf was a picture of bounding billows, white caps chasing each other as far as the eye could reach. The salt sea air blew from the south and must be breathed to be appreciated.

"Gulls and other sea birds followed in our wake and coaxed in their thin whinnying voices for the tidbits of shrimp and squid we threw to them in the air, and which they very rarely miss catching before it falls to the water.

"Along the shores of the islands and keys bird life abounded. Huge brown and yellow pelicans waddled along the shores or dropped from the air like plummetts catching in their long bills such of the finny tribe as came too near the surface.

"In the shallows sober looking herons and bittern stalked or waded, feeding on the crustaceans left by the ebbing tide. Now and then darting their sharp bills into the clear water as some hapless fish ventured too near.

"Skirting the bays were congregations of thousands and thousands of robins evidently making ready for their northern migration. Doves and meadow lark and many species of plover and snipe kept the air aquiver with their different calls, and once what looked in the distance like a snow squall was found to be a vast wedge of large snowy heron, which swinging around and over our boat alighted on an exposed bar and commenced feeding at once.

"Such abundance of bird life we seldom see in the north, and it is a wonder that there are so many left of the migratory species.

"Doves and robins which we protect as song birds in Pennsylvania are considered 'game' south of Virginia, and slaughtered by thousands during both spring and fall migrations. There should be a Federal migratory bird law and also a unification of all such laws between the states.

"We arrived in an hour's sailing at a pier on Anna Maria Island, where in a few dips enough white minnows were caught to stock a hatchery. These minnows are exactly like miniature shad, and abound in millions. They are used not only for bait but are thrown overboard as 'chum' when the fishing grounds are reached to attract the big fish.

"After sailing for about two hours due south we reached what is known as 'The Banks' which is evidently a coral reef perhaps fifty feet higher than the ocean's floor,

and where the deep gulf fish apparently meet to eat and be eaten. The top of this bank is about 200 feet beneath the surface of the sea. Enroute to this point we were treated to a most unusual and beautiful sight. A few yards ahead and at right angles to our course appeared a school of flying fish, to me this was indeed a sight worth seeing. These aquatic aerial acrobats are about 20 inches long, almost round, and tapering from the head which is about three inches in diameter to about one inch at the tail. They are almost as transparent as glass, and look like nothing on earth or in the sky or air except a moving miniature airplane. Their fins move so fast as to give the illusion that they rotate like an airplane's propeller. They fly several feet above the surface and if meeting a wave or roller as this school did, pass right through it, maintaining the exact formation as when entering.

"It was my luck to hook and lose the first fish. As soon as I set the hook, he took matters into his own fins and went directly to the bottom where he managed to tangle the line in some coral or other tumuli, making it necessary to break an 80 pound test line and lose, of course, fish, sinker, hook and about 50 feet of good cuttyhunk.

"Our first catch were Snapper Mango similar in shape and action to our own black bass. They are highly colored and not to be despised either as a gamey fish or for the table, and weigh 5 to 20 pounds. Captain Goodie started 'chumming' with the surplus minnows, and we were soon surrounded with amber jack, the real fish we had come to catch, and one must needs have his mind on his business when with light tackle he hooks a 30-pound jack.

"They are very beautiful in color, running from amber to crystal opal and are built both for speed and fighting qualities, having a forked tail like the king or mackerel family.

"Believe me it is interesting to watch some chap, who never had the pleasure of hooking one before. His soul is possessed of but one thought and that is to get the fish aboard the boat in the shortest possible time, while the fish has ideas directly opposite, and many the line is snapped or rod broken before a decision is reached.

"At times with seven of us fishing, there was an amber jack weighing from 12 to 25 pounds on each man's hook or flopping around in the bottom of the boat before the

hooks could be removed and his shining majesty released and deposited in a bin with a quarter ton or more of his erstwhile companions.

"The amber jack is not only one of the most virile fighters in Gulf waters but when he comes to the table he is almost without a peer.

"To prepare for cooking, they are skinned and filleted, leaving all bones attached to the spine so there is nothing but a huge slice of most delicious white and tempting meat without a bone. When fried or broiled or baked or made into a chowder they will somehow impart to any man worth while a kindly feeling to even his remote neighbors, and in my case creating a wish that all my friends in Pennsylvania and elsewhere might have a day's catching such fish as the amber jack.

"Yours for good fishing, true friends and the great outdoors.

LESLIE W. SEYLAR.

"P. S. Plant a willow—Plant a million willows."

WATERSNAKES CAUGHT IN MINNOW TRAPS

A novel method of capturing watersnakes is that described by Robert C. Hascall, city editor of *The Evening Times* at Sayre. He wrote in August, 1934:

"I am interested in your campaign against snakes and wish to report a few observations I feel sure would help.

"I am a resident of New York state, but work in Sayre just across the line and conditions are identical. Streams are very low and the snakes are in the few holes remaining in some streams. For several weeks I have put out minnow traps for bait fish. More than half the time I find from one to three snakes in the traps in holes where I did not observe any snakes.

"These snakes are always dead, which surprised me as I thought they could live for hours under water. I never find any minnows in traps snakes have entered and presume the snakes have gobbled them. I have caught about 60 snakes in traps this year.

"While I know it is possible to shoot many snakes my experiences prove to me that minnow traps will get still more. I have seen no live snakes in the holes where I trap minnows."

BOARD OF FISH COMMISSIONERS HARRISBURG, PA.

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HERE ^A_N^D THERE IN ANGLERDOM



TROUT FISHERMEN, BEWARE OF COWS!

George Dewey of Williamsburg, according to Warden Link Lender, is one of our trout fishermen comprising the group of ardent stream improvement fans. That's why a cow swallowed the hook and half of his line one day last season.

The trout in Piney Creek were not interested in the least in any of his offerings, and George forthwith dropped his rod on the bank and proceeded to help the better fishing cause by a little stream improvement work.

As he plugged away at it, a boy who had been watching some cows in the pasture near at hand became all interest. Presently, however, his attention was distracted.

"My gosh," he yelled. Scrambling up the bank, George found that one of the cows had calmly munched and swallowed hook and part of the line.

Writing in March, Warden Horace Boyden, of Wellsboro, Tioga County, reported that spring was slow in coming to the North Tier counties. Frost was still in the ground to considerable depth but the snow was

slowly melting on the mountainsides. Owing to the great numbers of big trout observed in the larger streams, many local fishermen in that section are planning to confine their fishing to the larger waters if at all possible. Listed as favorites in this category will be Kettle Creek, Pine Creek and their tributaries, Genesee Branch, West Branch of Pine, and Cedar Run. Slate Run is also expected to attract many anglers.

Warden Anthony Lech, of Shenandoah, reports extensive sucker fishing during February on Sweet Arrow Lake, Schuylkill County. Sixty-three fishermen interviewed on March 4th at the mouth of the lake had taken 128 suckers. The best catch, made by Ed Reiner, of Donaldson, comprised fish ranging in length from 12 to 16 inches.

Fishing in Timber dam near Ricketts, Luzerne County, last season, Walter Naja, of Shenandoah, caught a pickerel 28 inches long and weighing 4½ pounds. Two spoons were found in the pickerel's jaws.

Sweet Arrow Lake also yielded a fine pickerel to George Shellenberger of Pine Grove. It measured 26 inches and weighed 4 pounds. A 37-inch eel weighing 3 pounds 13 ounces was taken from Sweet Arrow by Melvin Shellenberger, Pine Grove.

Another of those bullhead catfish in Lake Wallenpaupack succumbed to the lure of a spinner last season. Tony Batter, of Conchola, caught a bullhead by this method weighing two and one-half pounds.

When a brown trout measuring 22 inches in length and weighing 3 pounds succumbs to the lure of that pet fly, the Royal Coachman, that's news. George Wynn, of Pine Grove, caught the big brownie in Fishing Creek last season and added a 19-inch brown trout for good measure.

Sucker catches in many sections of the state improved during March. An ardent York fisherman, David A. Garver, made catches of 16 of these fish near Bowmansdale on the Yellow Breeches two days in succession.

HOW'S THIS FOR A TALL STORY?

This brief article should perhaps be headed "Eye-less Wonder of the North Branch," and since Warden Myron Shoemaker of Laceyville has submitted it we shall reproduce the report in his own words. The ANGLER, you know, being a fishermen's magazine, might be accused of exaggeration, and that would never, never do. At any rate, Myron writes:

"Here's one for the tall story club. H. N. White, Justice of the Peace at Towanda, while fishing near Homets Ferry late in August, 1934, noticed a rock bass about seven inches in length near the shore. One eye was completely out but the fish apparently was healthy in every way. Mr. White picked up the fish and to his amazement found that the eye on the other side of the head was also missing. Upon examination of the rock bass, there was found a hole extending from one side of the head to the other where the eyes should have been, and anyone could see clear through this opening. There was no apparent injury to the fish and nothing indicated that there had been. Mr. White says he took the fish to town with him so that his friends would not accuse him of taking liquors which make a fellow see things."

Now, brother anglers, can you match this one?



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NO. 5

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BOARD OF FISH COMMISSIONERS

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NOTE

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PENNSYLVANIA ANGLER

MAY, 1935

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No. 5

EDITORIAL

GOVERNOR EARLE IS NO. 1 ANGLER

Pennsylvania's No. 1 citizen, Honorable George H. Earle, Governor of the Commonwealth, is also the Keystone State's No. 1 angler this year. Resident fishing license No. 1 was issued to the state's chief executive.

Intensely interested in conservation of fish and game and in the cause of Pennsylvania sportsmen, the Governor is an ardent fisherman and hunter and has been for years. Fishing for game fish particularly appeals to him and at every possible opportunity that the affairs of state will permit he will be on trout or bass waters in the Keystone State.

Shelter on Streams Versus Open Fishing

Nature's scheme tolerates no interference. Conservation annals, without exception, show that when man interferes with the balance of life and food necessary for maintaining that life as dictated by nature in her scheme of things, disaster follows.

It is my firm conviction that our Pennsylvania fishermen are looking to the future of the great sport of angling. The future is the keynote being sounded now by the Fish Commission in its constant efforts to better fishing for years to come. With this thought in mind, we must consider a factor vital to the very heart of our better fishing program—shelter in the form of vegetation and cover on our streams and on the watersheds they drain. Constantly the strain upon our fishing waters is being increased as thousands of Pennsylvanians are turning to this ideal sport. It is necessary for us, as fishermen, to realize that we must sacrifice the ease with which an open stream may be fished, for the more difficult fishing in a stream having adequate brush and shelter on its shores and cover in the stream itself, if real progress is to be made in the drive for improving fishing.

Our trout streams are in great need of the protection afforded by trees, brush, and cover. Here

the temperature factor enters, and the food possibilities provided are an issue. Let us consider, for example, a small spring run, rising in mountainland, and tributary to some larger trout stream. Its source, a spring having a water temperature of perhaps 50 degrees Fahrenheit, may emerge in a tiny rock-clad gorge, practically closed in by foliage of overhanging trees and fringed by ferns. The course of this spring run may be only a quarter of a mile in length, and nature has provided that brush and thick vegetation shall shade it until it enters the main stream. Shade is vital to it, keeping the water at low temperatures to the point of juncture. If it is of sufficient size, it may serve as a spawning area for trout in the main stream. Here the fry will hatch, and until they attain the fingerling stage in growth will remain. A highly essential source of their food, insect life from the overhanging foliage, is constantly dropping on the surface during the summer months.

Sufficient shade holds not only this brook's secret as an ideal tributary to a trout stream, but its adaptability as a natural spawning ground as well. Remove this vital shade from the stream and its benefit as a cold water tributary is destroyed. Sunlight, penetrating the water, warms it, and lack of cover greatly reduces its availability as a good nursery stream which nature intended it to be. Certainly the sportsman finds little to attract him to this ravaged feeder stream. The few trout in it, if any remain, are of such small size that they are not to be considered as legal

fish. As for the main stream, a vital source of low temperature water has vanished, and this essential tributary during hot weather has been robbed of the usefulness intended by nature.

Summing up on the subject of "Shelter on Streams vs. Open Fishing," our anglers must consider two alternatives: first, the clearing away of brush and foliage on the shores, tangles of logs and other obstructions in the stream itself, to make fishing easy, or second, assisting nature to accomplish the best possible results by stream improvement and increasing the available supply of shelter.

I believe that there is little doubt concerning the course to be followed. In the first instance, easy fishing will mean fewer fish to be caught. It will mean streams devoid of much natural food for fish, and damaged to such an extent as fish producers as to retard for many years their rise to peak production. Every trout stream should have areas too dense to fish, areas that serve as natural feeders to more open water.

In the second course, a field is opened whereby the fisherman may aid directly in the better fishing program. The past century has witnessed waste of our natural resources unparalleled in history. Vast forests of virgin timber, nature's giant reservoirs, fell before the advance of the sawmill in Pennsylvania. Nature patiently resumed her task after the great log drives became history and today our watersheds are clothed with a splendid growth of young timber. Our streams and their sources in the timberlands are once more shaded in many instances and fed by natural reservoirs, the forests. On many meadow trout streams, the willow planting campaign this year should be of real benefit.

We owe to future generations of Pennsylvania's anglers and to ourselves the responsibility of assisting in every way possible the comeback of our streams that only nature can assure.



Commissioner of Fisheries

Favorite Dry Flies

By CHAS. M. WETZEL

(Illustrated by the Author)

PICKING out a collection of trout flies that rank high on Pennsylvania waters is quite a task; and it is with a rather dubious feeling that I have compiled the dressings for the following list. In my opinion, this group with its various colors, is a fairly representative one and should catch trout—that is, if they are rising. The material used in the construction of the flies works equally well on either the common or the up-turned body artificials—those imitating the mayflies. I might add that the latter flies are not an innovation, yet through faulty tying in the past they have been relegated to a position where they do not rightfully belong. With the descriptions given herewith, those of you who have followed my past articles on fly tying, should have no difficulty in constructing any of them. Some of the flies are creations of fancy; some in a general way are copies of insects—patterns so well known that one feels like changing them; one or two are close imitations of flies, copied long ago by a far more skilled angler than I; while still others are my own interpretations of aquatic insects, which I have caught over and on the water, both in Pennsylvania and on various northern streams.

No. 1. The Royal Coachman (Fanwing)

This is one of my favorite flies and has probably accounted for more trout than any of the following. It is probably no better than the others, yet the confidence I have in its efficacy has never been shaken. It is a fancy fly, but it's great on trout, especially browns.

Body, peacock herl, with a red floss silk band in center and red tip; hackle, brown; tail, a few fibres from a golden pheasant feather; wings, the curled and mottled breast feathers from a mallard duck.

No. 2. The Pale Evening Dun

From conversations with various anglers, I believe this fly to be an imitation of the small mayfly *Cleon vicina*. It is smaller than the pale watery duns and has clear colorless wings, whereas the wings of the pale wateries are clouded.

Body, pale yellowish white floss silk, ribbed with fine gold wire; hackle, dun color; tail, grey fibre; wings, starling or light gray duck wing feathers.

No. 3. The Governor

A fancy fly that does well on most trout streams. Probably it was originally intended as an imitation of a caddis fly.

Body, peacock herl with red silk floss tip; hackle, brown; tail, none; wings, the brown and black mottled tail feather of a turkey.

No. 4. The Pale Watery Dun

Most of the pale whitish yellow mayflies are called either pale evening duns or pale watery duns. Many claim that the original artificial included both the pale evening and the pale wateries in its makeup; but I believe the pale evening dun to be *Cleon vicina*, a much smaller fly than the pale watery duns *Baetis bioculata* and *Centroptilum Zuteolum*. Both of the latter flies have been identified and classified in America, and they are the identical insects that Halford (probably the

world's greatest fly fisherman) imitated so successfully in England. I can do no better than to give his description of this artificial.

Body, stripped condor, dyed a shade of sulphury white; hackle, dyed Naples yellow; tail, Gallina, dyed Naples yellow; wings, pale starling; head, three close turns of horsehair, dyed pale dead leaf color.

Condor quill is rather difficult to obtain, but may be procured from H. Noll, Apsley and Zeralda Sts., Philadelphia, Pa. It is obtained by stripping the flue from the fibres of a condor wing feather, but peacock quill from the eye of the tail feather should work equally as well. The advantage of condor quill lies in its greater strength; disadvantages—harder to remove the flue, while stripping. My own and alternate design I will now give.

Body, pale yellow floss silk ribbed with gold wire or tinsel; hackle, dyed yellowish brown; tail, fibres from a wood duck feather; wings, starling or light grey duck wing feathers.

No. 5. The Pale Watery Spinner

This fly is intended to represent the imago stage of the pale watery duns. It is tied with the wings in an outstretched horizontal position, either with the hackle points, or one side of the hackle clipped off along the quill as I described somewhere before. The latter method is undoubtedly the best way, although some fly tyers don't like it, having an aversion to using a scissors on any part of a fly.

Among the mayflies, copulation usually occurs in the air. The male darts from below and seizes his mate, attaching himself with his claspers, or forceps to her hinder body segments, meanwhile embracing her thorax with his elongated fore tarsi or feet. Unable to support herself and mate, the couple sink to the ground, and by the time this is reached, intercourse is usually completed. The male being prone to polygamy flies off in search of another mate, while the female shortly repairs to the water to lay her eggs. While ovipositing, she can be seen rising and falling over the water, dipping down and touching the surface with the end segments of her body. This action washes off the eggs that are being extruded from her paired oviducts. Some of the mayflies have two egg sacs which they drop in a mass; others creep beneath the water and deposit them; while still others fall prone upon the surface, with wings outstretched and deposit their eggs that way. The latter is the position that the artificial spinner imitates,—i. e. while ovipositing or immediately afterwards, when its life cycle is completed.

Body, yellowish ochre floss silk ribbed with gold wire or tinsel; hackle, same as dun; tail, same as dun; wings, two pair of dun hackles set on horizontally.

No. 6. The Midge

This is patterned after the midge fly (genus *Chironomus*, order Diptera) that appears in such vast swarms around Lake Walenpaupack. The midges are among the most

ubiquitous or aquatic insects and are found on practically all of our streams.

Body, buff or light olive floss silk, tied rather slim and ribbed with fine gold wire; hackle, dun color; tail, none; wings, pale starling or light grey duck wing feathers.

No. 7. The Blue Winged Olive Dun

This fly is an imitation of the mayfly *Ephemerella bispina* and is very similar to the English blue winged olive *Ephemerella ignata*. Dr. Needham, who first classified *E. bispina*, is my authority for the above statement and at great trouble I have also secured Rev. Eaton's (the English entomologist) description of *E. ignata*.

Body, olive floss silk, ribbed with yellow silk thread; hackle, brown; tail, grey fibres; wings, coot wing feathers.

No. 8. The Sherry Spinner

This fly is intended to represent the imago stage of *Ephemerella bispina*, the blue winged olive dun.

Body, quill, either condor or peacock; hackle, ginger; tail, ginger hackle fibres; wings, two pair of pale ginger hackles set on horizontally.

No. 9. The Brown Bi-Visible

Although it resembles no insect, this is a peach of a fly. No more need be said.

Body, brown hackle, palmer tied full length, with two turns of white hackle wound on at the head; tail, brown hackle fibres—quite bushy.

No. 10. The Blue Bottle

The prototype of this fly is quite well known and recognized by everyone. It belongs to the Diptera and is known as *Lucilia sylvorum*.

Body, steel blue silk or chenille, ribbed with black silk thread; hackle, black or dark grey; tail, none; wings, coot wing feathers.

No. 11. The Alder

This is an imitation of the smoky alder fly, known as *Sialis infumata*, order Neuroptera.

Body, a blend of wool, black and brown, with black the ground color—or as an alternate—peacock herl; hackle, black; tail, none; wings, black mottled with rust color, or dark mottled turkey tail feather.

No. 12. The Cowdung

An old favorite, imitating the cowdung fly, genus *Scatophaga*, order Diptera.

Body, olive color floss silk; hackle, brown; tail, none; wings, grey duck wing feathers.

No. 13. The Green Drake

This fly is patterned after the large mayfly *Hexagenia Zimbata*. The browner colored drake *H. bilineata* is a close relative to this fly but is not always found on the same stream. The nymphs of *Hexagenia*, have a pair of mandibles which places them among the carnivores, but the majority of mayflies are herbivores, feeding on diatoms, aquatic plants and decaying vegetation. The drake nymphs are of the burrowing type and appear to be found only on some of the larger streams and waters. I will give the dressing for this fly with the up-turned body, as I have described the fan wing type before.

Body, raffia grass, ribbed with brown silk



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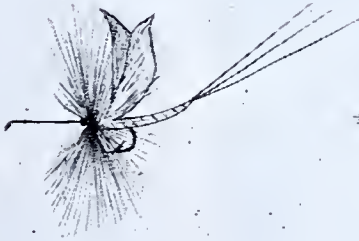
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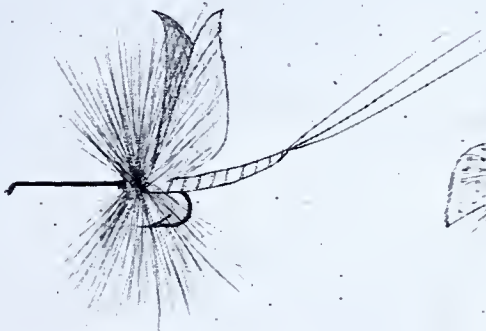
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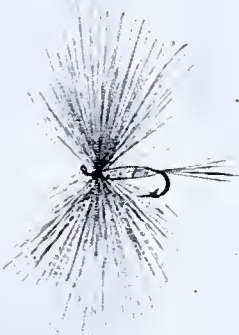
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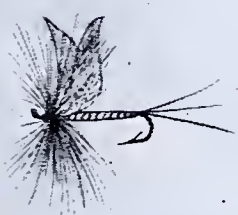
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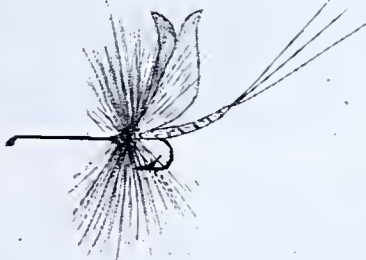
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Wetzel 5-35

thread; hackle, brown; tail, fibres from a wood duck feather; wings, goose wing feathers, dyed pale greenish yellow.

No. 14. The Professor (Fanwing)

This fly is one of the best of the fanwings. Probably, the red tail arouses the trout's fury and goads it into striking.

Body, yellow floss silk or wool, ribbed with gold tinsel or wire; hackle, brown; tail, a few fibres dyed bright red; wings, curled mottled mallard feathers,—off the breast.

No. 15. The Black Gnat

Strange as it seems, this fly appears to be one of the best for night fishing. Seventeen years ago this spring "Rube" Kelly, (probably the best fisherman on Kettle Creek) and I were fishing the Hammersley. In the inky darkness and fishing with a black gnat, "Rube" scored a big catch of brook trout, while I secured plenty of experience in night fishing. I have never seen Rube since that night. Every time I fish the Kettle, I call at his house and invariably I meet with the same response: "He's out fishin'."

No. 16. The Fore and Aft Fly

This is a fly that has sprung into prominence within the past few years. Like blvsible, it is another good floater.

Body, orange floss silk, ribbed with black silk thread; hackle, grey or grizzly from a Plymouth Rock rooster; tail, wood duck feather fibres.

No. 17. The Spider

This fly was probably an attempt to imitate the crane flies—those long legged insects that hover over the water. It is made in a number of patterns, like the fore and aft flies, but the one I like best is given below.

Body, bright yellow floss silk, ribbed with black silk thread; hackle, badger (black center with a creamy edge) with very long fibres.

No. 18. The March Brown

An old English fly fisherman, artist and entomologist, by the name of Ronalds called the prototype of this fly *Baetis Zonguacauda*. Later Halford called it *Ecydurus venosus*. I will call it *Siphonurus alternatus*, for I believe this particular mayfly was originally named the March Brown in this country. Ronalds evidently classified the fly incorrectly—or the name was later changed—and to the average fisherman, the difference between *Ecydurus venosus* and *Siphonurus alternatus*, would not be apparent. Both would probably be called the March Brown. Only someone trained in entomology and accustomed to the venation of wings, would perhaps know the difference. In insect taxonomic work, the wings are very important, and those of the mayflies with their numerous veins, cross veins and intercalaries are among the most difficult to read correctly. I know whereof I speak for I have spent many an hour laboring over them. But getting back to the March Brown. This drake fly is considerably smaller than *Hexagenia*, and through the ages seems to have been the dividing line in size that distinguishes the duns from the drakes.

Body, chocolate brown floss silk, ribbed with yellow silk thread; hackle, brown; tail, brown turkey tail fibres; wings, brown mottled partridge or turkey feather.

No. 19. The Great Red Spinner

This fly is intended to represent the imago stage of the March Browns.

Body, a blend of orange and brown silk,—ground color brown—ribbed with gold tinsel; hackle, brown; tail, brown turkey tail fibres; wings, two pair of light cocky-bonddhu hackles (brown tipped with a black center) set on horizontally.

No. 20. Dod's Pet

This is my version or interpretation of a caddis fly (genus *Limnephilus* order Trichoptera) whose larva builds its house out of small stones and sand. It is quite commonly found around Beavertown and on most Pennsylvania streams, especially in the shallower headwaters. Since I am probably the first who ever attempted to imitate this fly, I am taking the liberty of christening it, "Dod's Pet."

Body, a blend of dyed orange and brown herl from an ostrich feather; hackle, brown; tail, none; wings, mottled turkey wing feathers.

No. 21. The Ginger Quill

All the quill flies are good and this one in particular. It is a favorite with many, including, I believe, the editor of the ANGLER. It is probably taken to represent collectively and in a group the pale watery and the light olive duns.

Body, peacock quill at the eye of a tail feather, or quill stripped from the wing feather of a condor; hackle, ginger; tail, ginger; hackle, fibres; wings, light slate duck wing feathers.

No. 22. The Ginger Quill (Fanwing)

This fly differs from the ginger quill only in that the wings are of a slaty speckled blue, taken from the wing bow of an unknown duck. The curled feathers on the wing bow are superior to the breast feathers for fanwings, as they are shorter and heavier in the quill. Try this fly sometime.

No. 23. The Yellow May Dun

An imitation of the mayfly, known among entomologists as *Heptagenia flavescens*. We have all seen these yellow flies flying over the water. *Heptagenia interpunctata* is somewhat similar. I dare not change the dressing of this old artificial.

Body, yellow silk floss body, ribbed with gold wire or tinsel; hackle, yellow; tail, yellow hackle fibres; wings, duck feather wings, dyed yellow.

No. 24. The Yellow Sally

This is an imitation of the green stone fly, genus *Chloroperla*, order Plecoptera. Its color is probably due to infiltration of chlorophyll. I have never had much success with either this fly or the Yellow May, but many anglers swear by both.

Body, light green floss silk ribbed with brown silk thread; hackle, dyed greenish yellow; tail, yellowish brown fibres; wings, green—from a parrot.

No. 25. The Cahill

This is an old favorite with many anglers.

Body, rabbit's fur or mouse colored mohair; hackle, brown; tail, mottled wood duck fibres; wings, grey mottled wood duck fibres cut from a feather.

And now the list is complete. I have not included any of the gaudy flies like the Paramachene Belle, Red Ibis, Silver Doctor and others, for outside of Canadian waters, I have never caught any trout on them. It is my hope that I have not neglected any of your old favorites, but if this has proved the case, I will blame it on lack of space. There are so many flies—new ones are constantly cropping up—that it would fill a

small volume to even give the dressings. That is our main trouble. We have too many flies. Everyone who ties his own artificials has probably been guilty in adding to the number, including myself. If we could pare down the list—say to fifty—making an honest effort to study and imitate the fly on the water—our stream days would be more pleasantly spent and the joys of angling would be increased a hundred fold.

GOOD SPORTSMANSHIP PAYS—HERE'S PROOF!

Keeping trout or any other game fish caught out of season doesn't help a fisherman's conscience and certainly can't be a source of pride. The following report submitted by Warden Link Lender bears out the saying that good sportsmanship always pays. We'll let James Cleaver of Bedford tell it.

"Dr. E. M. Stevens, retired Methodist minister of Bedford, and a companion tried their luck for panfish in Yonts Run, Bedford County, in August two years ago. This stream also has some trout in it. It has two branches, the left hand branch being large enough to run Triplett's mill. I went after the preacher that evening and he had a number of sunfish and rock bass. But he told me of a trout that he had caught and put back because it was out of season. This trout had measured 16½ inches.

"All winter we kidded the minister because he said that he would catch that trout the next season. In May of the next summer, Clem Johnson, Dr. Stevens and I made out to go trout fishing and Dr. Stevens suggested that we go to Yonts so that he could catch his big trout.

"We separated when we got to the stream and came together at the end of about three hours. Clem and I had a couple of trout but Dr. Stevens held up 17 inches of as pretty a trout as you ever saw and suggested that we laugh now. Was he proud of that trout? He had waited nine months to catch it legally but I'll wager that he got more kick out of that trout than any he ever caught."



LAST YEAR'S RECORD BROWN
TROUT FROM THE LACKAWAXEN

Balanced Tackle in Fly Fishing

By KENNETH A. REID

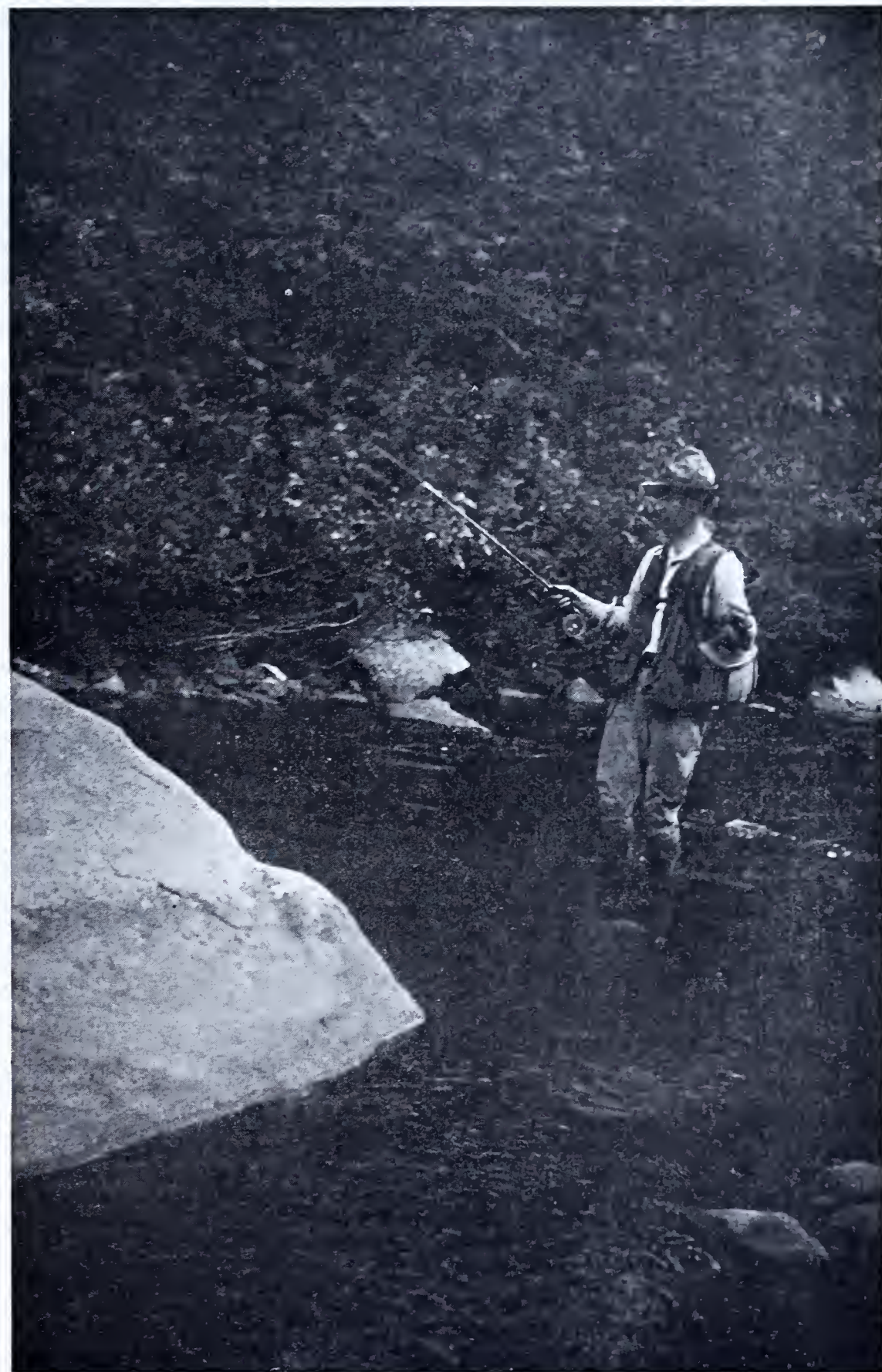
Member, Board of Fish Commissioners

IN ORDER to attain any real success in fly casting, it is essential that the individual items of tackle be properly balanced one with another. One may have the finest individual rod, line, reel, leader and fly that it is possible to procure and yet the assembled outfit may prove utterly hopeless when it comes to casting. Lack of proper appreciation of the necessity for this coordination in the different items of tackle is responsible for more woes of a beginner than any other single factor. Of course, he must also learn the technique of casting, but he must have a reasonably well balanced outfit as a preliminary to learning the art of casting.

As a proper understanding of the functions of the various items of tackle is necessary to their proper selection and use, it will be well to clearly differentiate between a fly casting outfit and a bait casting outfit. In bait casting, the lure has appreciable weight of anywhere from one-half to more than one ounce, and it is this weight that you actually cast and which in turn pulls the line out after it. It is similar to throwing a crabapple with an apple switch. In fly casting, the fly has no appreciable weight and can not of itself be cast. Strictly speaking, you *cast the line*, which in turn carries with it the leader and fly. Naturally, this fly line must have appreciable weight which, depending on the rod, will vary for the customary 30 yards from about $\frac{3}{4}$ of an ounce to an ounce and a half. The weight of this line should be sufficient to cause a decided bend in the rod when it is picked up from the water preparatory to the backcast and 25 feet or more of it is beyond the rod top. Probably the greatest single error in fly fishing is the tendency to use a line that is entirely too light to properly develop the inherent action of the rod.

For trout fly fishing on Pennsylvania waters, a split bamboo fly rod eight feet in length and weighing approximately $3\frac{3}{4}$ to 4 ounces will be found much pleasanter to cast and just as effective as longer and heavier rods. A level fly casting line will be found more suitable for small stream work and for such a rod a size F would likely be correct. If the rod showed a tendency toward stiffness, it might require the next larger size E. In dry fly casting on the larger streams, a double tapered line has some advantages in delicacy of handling, and the proper size for this same rod would be an HEH or, in the case of a comparatively stiff and powerful rod, an HDH. A fly casting line is generally spoken of as "enamelled silk" as opposed to the plain braided silk used in bait casting. They are quite different affairs and are in no sense interchangeable.

The reel is probably the least important item in the fly caster's outfit. A single action plain click reel of the conventional narrow spool type with a diameter of three or $3\frac{1}{4}$ inches is recommended. Usually the spool capacity will accommodate considerable more than your 30 yards of fly casting line, and it will be found advantageous to first



wind on the spindle enough linen backing line to build it up to the required diameter so that the spool will be comfortably filled. This will not only keep your line in better condition by reason of the larger diameter of its coils on the reel but will give you greater speed in line recovery. The weight of the reel for the 8 foot rod should be at least 5 ounces but not more than about 6 ounces.

The bare reel should weigh from $1\frac{1}{4}$ to $1\frac{1}{2}$ times as much as the rod. In the case of a fly rod where the reel is set behind the hand grasp, the weight of the reel actually makes the rod feel lighter by tending to balance it in the hand and relieves it of the feeling of end or tip heaviness. With the proper weight reel on the rod, the assembled

(Turn to Page 15)

Fontinalis Rises

Life Sketch of a Brook Trout



THE jagged outlines of a mass of drift-wood and ancient logs fringing the eddy of a Black pool were merging with the dusk of a May evening as Fontinalis rose leisurely, time and again, to the succulent green drakes. It was carnival time for the trout in a great central Pennsylvania stream, and it would last not more than from one to two weeks. Shad fly time, local fishermen termed it, this brief period of the year when vast hordes of drakes cluttered the vegetation along the shores. During the day, an angler could shake from a single tree branch eight or ten and perhaps more of the graceful insects.

In other sections of the stream, trout were gorging themselves on the myriad insect life. Here and there, tiny dimples appeared on the water, as giant brown trout rolled lazily to the surface, sucking the daintily floating flies into their maws. Golden surges, much more swift and explosive, marked the feeding of the small browns. Twenty years before, shad fly time had been the sole enjoyment of the forbears of Fontinalis, the brook trout. Today, rare indeed were the shimmering silver and red and mottled dark green flashes that indicated the surface feeding of the native charrs. Another race, a race of invaders, the brown trout of Europe, now was dominant.

Fontinalis was, from the angle of coloration, build, length and girth, typical of speckled trout in the era when the first white settlers pushed the frontiers of the American colonies past the mountain barriers of the Alleghenies. His coloration was so vivid that no artist's brush could do it justice. The marbling of deep green and black on dorsal fin and back, merged in the sides to white and red spots on a dark background. And those red spots! Half as large as dimes, they faded to pale blue on the borders. His ventral surface or belly was a deep red; the pectoral fins, below and behind the gill covers, ventral fins, and anal fin were deep orange, bordered by black and white on the outer edges. A vague semblance of the parr markings so prominent in baby brook trout remained. His head, while large with slightly elongated jaws, tipped a deep, broad body given to speed and power. In length he exceeded seventeen inches and in weight three pounds. For years, he had haunted the deep swirl beneath the mass of brush and logs, leaving it only when the annual spawning urge impelled him and his kind to seek the headwaters.

The persistent rises of Fontinalis on this particular evening brought forth an ejaculation from the Old Fisherman who had carefully approached the pool. Back in the days when he drove horse and buggy to fish this

stream, he had taken brook trout that would equal Fontinalis in size and beauty. But time had wrought its changes in his pet stream, time and the brown trout. For the Old Fisherman was a "die-hard." While he granted that the brown trout was a fighting fish of no mean calibre, memories of other days with the species of Fontinalis had served to embitter him against the invaders. And here, in the Black pool, was a brook trout the like of which he had years ago given up hope of catching.

The carefully fashioned drake, imitating amazingly flies now on the water and over which he had worked many evenings the winter before, fluttered lightly to the surface above the log jam. Like a tiny gossamer sailed ship, its wings erect and upward tilted abdomen balanced lightly, the artificial swung with the current into the eddy. There was that eager surging rise of the giant brookie, and Fontinalis was fast. Carefully, reverently, the Old Fisherman played him, until that moment when all of his shimmering beauty quivered in the captor's hands. Time had turned back, for an old man, whose greatest joy was dreaming of other days, horse and buggy fishing days. He had caught once more a veteran charr in the stream once famous for the size of its speckled trout.

The passing of Fontinalis from the Black pool may truly be termed the end of an era on a great stream fed by deep seated limestone springs. Now let us turn back to that time, seven years before to be exact, marking the origin of Fontinalis.

* * * * *

Chill autumn nights and frosty mornings had served to cool the lower waters of the stream to which Fontinalis was to make his appearance the next spring. From a deep pool cut beneath an overhanging bank, his sire, a fourteen-inch brook trout of striking coloration, started the spawning migration one morning in late October. His gorgeous mottling and spots seemed a fitting complement to the world of color on the shores of this wilderness stream. The brilliant red of the maples, the more sombre tints of the oak and hardwood leaves and the rich green of pine, spruce, hemlock and laurel were a setting for the stream up which the sire of Fontinalis made his way.

As his mottled dorsal fin showed above the surface in the shallow riffle at the head



of the home pool, another trout of twelve inches, the mother of Fontinalis, followed him. Heavily laden with eggs, her progress was more slow and tedious. Up, up the stream they progressed, the female lagging farther and farther behind in the diminishing depth and width of the stream, and in the swift riffles and brawling rapids. Finally, in a tiny fern and moss bordered pool, just over a bar of pebbles, the sire of Fontinalis paused. Industriously he fanned clear of all sediment a spot on the bar, his pectoral, ventral and anal fins accomplishing this task to the wriggling motions of his body.

After the eggs had been deposited by the female trout on the nest and had been fertilized by the milt of the male, both fish apparently lost all of the vitality that had characterized this amazing journey to the headwaters. Listlessly, in a brief time, they dropped downstream, to the waters that constituted their home during virtually eleven months of the year. To the pebble bar nest, in low temperature water not subjected to much freezing, nature's incubator, the parents of Fontinalis entrusted the welfare of the eggs and offspring.

Then, one day in late March, a warm, mellow day, the egg containing Fontinalis hatched, and a grotesque-appearing creature with outlandish yolk sac came into being. For twelve days, Fontinalis in the fry stage lay absorbing his food from this sac. Then he essayed short, very short, explorations from the pebble bed. And each succeeding day found him gaining strength and size. For there, in the headwaters in early spring, minute organisms teemed. There he found an abundance of insect larvae, so essential to the development of all fingerling trout. Gradually, as spring merged into summer and summer advanced, Fontinalis, in company with others of the hatch, made his way farther downstream. He was now in the so-called fingerling stage, and, at a point about one-half mile below the place of his birth, he found a dark swirling pool. In that pool he remained another year, for beneath the shelving rock was ideal protection from his enemies.

His coloration at this time was exceedingly dark, blending with the shadowy pool. Perhaps in no other race of fishes is protective coloration more pronounced than in the eastern brook trout. In a tiny open glade, another fingerling of the same hatch as Fontinalis, had taken up its home. Over the white sand and pebbles of the bottom, this trout was extremely light. Tending to increase the brilliancy of markings in these charrs was an abundance of rich organic food. Perhaps, too, the mineral content of the water was partially responsible. In Fontinalis, at this stage, the parr markings, dark, vertical blotches extending down over the sides, were strikingly noticeable.

Life was an alluring adventure for young Fontinalis. Near the headwaters, food seemed ridiculously easy to secure. Curiosity was characteristic of this baby brook trout. Frequently, as he was lying head pointed upstream, a life habit of the charrs, for from above the pool came food carried by the swirling waters, some object would cause him to dart toward the surface. It might be a twig or any other incongruous particle that served to attract his attention. Even during later years of his life, he sometimes gave vent to this curiosity, rising to

the surface to look over some queer-looking man-made lure that floated past.

In the third year of his life, Fontinalis dropped still farther downstream. He was then a nine-inch trout, giving promise, through the girth and bulk of his body even at that stage, of developing into an unusual fish. That summer, a squat slate-colored reptile, the watersnake, succeeded in cornering and seizing one of his companions beneath a shelving rock, and Fontinalis henceforth lived in abject terror of this major enemy to his kind that slithered so noiselessly into the pool.

When he had attained a length of thirteen inches in the fifth year, he finally settled in the eddy beneath the drift. Now his diet, in response to greater body needs, was more varied. Chubs, shiners and dace, fell prey to his swift forays. And in this feeding on other species of fish, he had real competition. Two invaders larger than Fontinalis, brown trout each well over eighteen inches in length, harassed the minnow schools. Here again was greater body need demonstrated, and the brown trout thrived in this stream harboring so much forage. They drew no line between young trout of their own species, young brook trout and minnows, and as they developed in size did much of their feeding during the night. Fontinalis,

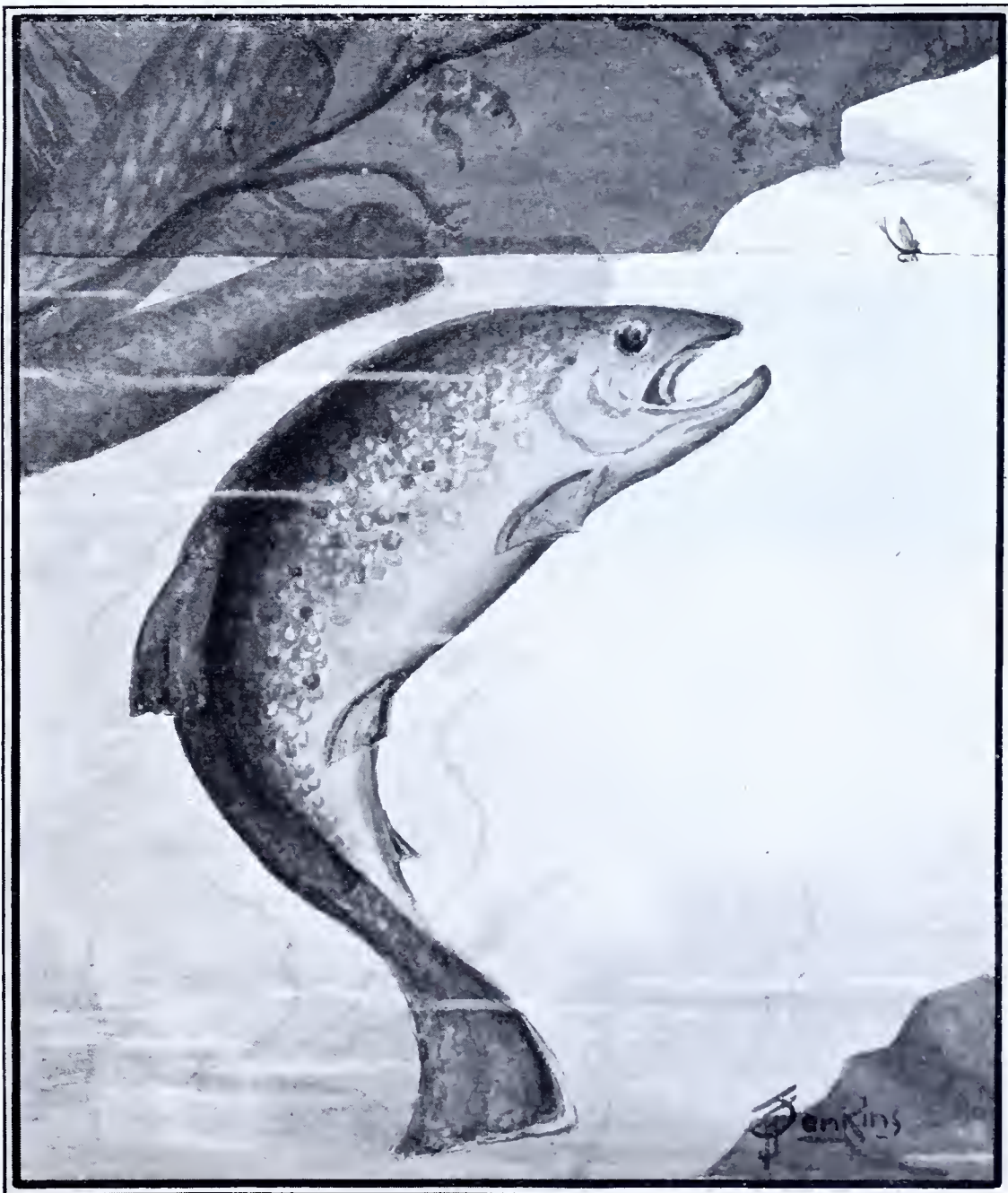
likewise, on occasion did not hesitate to revert to cannibalism.

In his fifth year, he accompanied a twelve-inch female brook trout on the spawning run. One of the survivors of the spawning episode from which emerged Fontinalis, she had chosen as her home the same pool in which Fontinalis thrived. But the next spring, an artificial fly brought an end to this companionship and Fontinalis as he gained in weight and girth during the last year of his life was solitary in his realm by the log jam.

So completely had the brown trout taken over this stream, that it was now regarded as futile to release brook trout in it. It was henceforth classified as brown trout water and stocked accordingly. Not that it failed at any time to produce splendid trouting, however, for the fighting browns provided more than one fisherman with rare sport during that same summer in which Fontinalis ceased to be. Little wonder then, that like a glimmer of color from the past was Fontinalis' last rise to fly that evening in May when the Old Fisherman scored.

It may be truly said that he still lives in memory.

This is the first of a series of articles by your editor on the life habits of Pennsylvania game fishes. Next month—"Dolomieu Strikes."



Primitive Fishing

Last of a Series of Articles Concerning the Origin of Fishing Tackle

IN THAT dim period when prehistoric man was forced to rely upon superior cunning to exist, when his life depended upon skill in fashioning weapons by which he might capture fish or animals, a strange, groping start was made toward modern fishing. Whether he fished or hunted for subsistence was probably determined by the locality in which he lived, and, of course, it is possible that both pursuits, instinctive with the human race, were followed. His slow rise to dominance may be traced, in part, by progress made in fashioning fish-hooks.

Wrote Barnet Phillips, secretary of the American Fish Cultural Association in 1883, and an authority on primitive fishing methods:

"After brute instinct, which is imitative-ness, then came shiftiness and adaptiveness. The rapid stride of civilization, considered in its material sense, is due solely to the use of such implements as are specially adapted for a particular kind of work. With primitive man, this could never have been the case. Tools of the Paleolithic or Neolithic age (which terms indicate stages of civilization, but are not chronological), whether they were axes, hammers, or arrows, must have served river-drift or cave-men for more than a single purpose. People with few tools do manage by skill alone to adapt these to a variety of ends. The Fijian and the Russian peasant, one with a stone adze, the other with a hatchet, bring to their trades the minimum of tools. The Kaffir, with his assegai, fights his bat-



SHELL HOOK

years had elapsed since the formation of the lowest layer of peat in the bed. Other authorities thought it not older than 7,000 years B. C. Its surface slightly marred through the action of thousands of years, this stone fish gorge is crudely crescent in shape and grooved at the center.

Probably lost by a primitive fisherman in what must have been at one time a lake, it is possible that this stone fishing device was covered with bait, the fish was permitted to swallow it, and then, when the stone came cross-wise in its gullet, was captured.

A very clever and plausible argument in the evolution of the fish hook was advanced in 1883 by Mr. Phillips.

"In the Swiss lakes," he wrote, "are found the remains of the Lacustrine dwellers. Among the many implements discovered are fish-gorges made of bronze wire. When these forms are studied, the fact must be recognized at once that they follow, in shape and principle of construction, the stone gorges of the Neolithic period. Now, it is perfectly well known that the early bronze-worker invariably followed the stone patterns. The Lacustrine gorges have had the name of *bricole* given them. This is a faithful copy of a bronze *bricole* found in the Lake of Neufchatel. It is made of bronze wire, and is bent in the simplest way, with an open curve allowing the line to be fastened to it. The ends of the gorge are very slightly bent, but they were probably sharpened when first made.

"This *bricole* varies from the rather straight one found in the Lake of Neufchatel, and belongs to a later period. It is possible to imagine that the lake-dweller, according to his pleasure, made one or the other of these two forms of fishing implements. As the double hook required more bronze, and bronze at first was very precious, he might not have had material enough in the early period to make it. This device

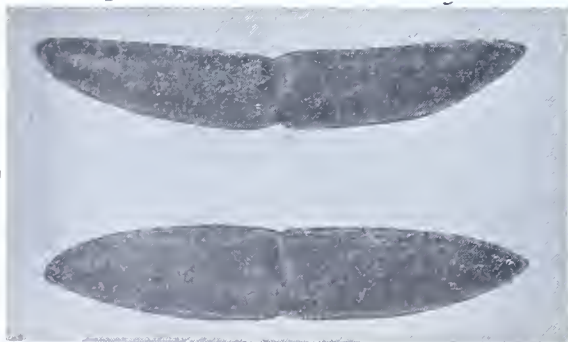
is, however, a clever one, for a fisherman of today who had lost his hook might imitate it with a bit of wire. When we compare the four forms (as illustrated), showing only their outlines, the evolution of the fish-hook can be better appreciated."

In commenting on the stone fish-gorge, he wrote:

"It is evident that the man of that time followed the shape handed down to him by his ancestors; and as this fashioned stone from the valley of the Somme is of a most remote period, how much older must have been the Paleolithic fish-gorge of rough stone. It might have been with a splinter of flint attached to some tendril, in lieu of a line, that the first fish was taken.

"It is very curious to learn that in France a modification of this gorge hook is in use today for catching eels. A needle is sharpened at its eye-end, a slight groove is made in the middle of it, and around this some shreds of flax are attached. A worm is spitted, a little of the line being covered with the bait. * * * * *

"Any doubts as to the use of the Neolithic form of fish-gorge must be removed when it can be insisted upon that precisely this form of implement was in use by our Indians not more than forty years ago (about 1843). In 1878, when studying this question of the primitive hook, I was fortunate enough to receive direct testimony on the subject. My informant, who in his younger days had lived among the Indians at the headwaters of Lake Superior, said that in 1846 the Indians used a gorge made of bone to catch their fish. My authority, who had never seen a prehistoric fish-gorge, save the drawing of one, said that the Indian form was precisely like the early shape, and that the Chippewas fished some with the hook of



STONE FISH GORGE FROM THE VALLEY OF THE SOMME

ties, kills cattle, carves his spoons and shaves himself. It was only as man advanced that he devised special tools for different purposes.

"Following, then, closely the advance of man, when his fishing implements are particularly considered, we are inclined to believe that he first used the spear for taking fish; next, the hook and line; and lastly, the net. There might have been an intermediate stage between the spear and the hook, when the bow and arrow were used."

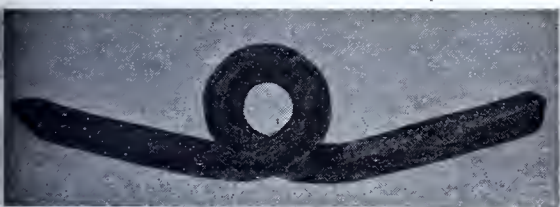
One of the greatest finds ever made relative to primitive fish hooks was unearthed in the valley of the Somme River, France. In substance, it was a small piece of dark, polished stone. A peat bed, 22 feet below the surface of the earth, yielded this strange relic. The age of the peat bed proved a matter of debate at the time. It was believed by M. Boucher de Perthes that 30,000



PREHISTORIC FORMS IN EVOLUTION OF FISH HOOKS

civilization, others with bone gorges of a primitive period.

"In tracing the history of the fish-hook, it should be borne in mind that an overlapping of periods must have taken place. By this is meant, that at one and the same time an individual employed tools or weapons of various periods. Today, the Western hunter lights his fire with a match. This splinter of wood, tipped with phosphorus, the chlorates, sulphur, or paraffine, represents the progress made in chemistry from the time of the alchemists. But this trapper is sure to have stowed away in his pouch, ready for an emergency, his flint and steel. The Esquimaux, the Alaskan, shoots his seal with an American repeating rifle, and in lieu of a knife, flays the creature with a flint splinter. The net of the Norseman is today sunk with stones or buoyed with wood,—certainly the same devices as were used by the earliest Scandinavian,—while the net, so far as the making of the thread goes, is due to the best modern mechanical appliances. Survival of forms require some consideration apart from that of material, the first having much the stronger reasons for persistence. It is, then, very curious to note that hooks not made of iron and steel, but of bronze, or alloys of copper, are still in use on the coast of Finland, as I have quite recently obtained brass hooks from Northern Europe such as are commonly in use by fishermen there.



BRICOLE (LATER PERIOD)

"The origin of the double hook having been, I believe, satisfactorily explained, to make the barb on it was readily suggested to primitive man, as he had used the same device on fish-spears and harpoons.

"This double-barbed hook from the Swiss lakes is quite common. Then, from the double to the single hook the transition was rapid. Single bronze hooks of the Lacustrine period sometimes have no barb. Such differences as exist are due to the various methods of attaching the line."

Other materials that have been mentioned in connection with the fashioning of primitive fish hooks are shell and thorn. Some very clever fishing devices of the former material have been placed in the National Museum at Washington.

Many of the primitive hooks that have been found are of impressive size. Perhaps the most plausible explanation for their seemingly outlandish proportions would be that, when primitive man was taking his first halting strides in the quest for dominance, the aquatic life of the period was of greater size than that today. Under such conditions, larger devices for taking fish would naturally have been used.

It is a far cry from the cave-man fisherman of bygone ages and his crude stone fish-gorge to the modern angler, equipped with the finest lures and tackle the world has ever known; but in this somewhat brief sketch of primitive fishing equipment, the strong appeal of one of the oldest sports in the history of mankind, fishing, is portrayed.

Famous Trout Streams; How to Reach 'Em

THE NORTHEAST COUNTIES



A DEEP POOL ON THE LOYALSOCK

Wyoming, Bradford and Sullivan counties boast some excellent trout waters. While in many of the streams of this area, brook trout predominate, scrappy brown trout are also taken frequently.

In commenting on the trouting in these counties, Warden Myron E. Shoemaker of Laceyville, Susquehanna County, terms the fly-fishing excellent from May until the close of the season for trout on July 31. Individual taste, of course, dictates the patterns of flies that are effective. His own experience in fishing flies for trout, and he is an excellent fly fisherman, causes him to favor the blue quill, hare's ear quill, ginger quill, Wickham's Fancy, cahill, female beaverkill, and orange finn for early season. However, in suggesting the patterns, he declares a preference to the orange finn and cahill for general fishing.

"This orange finn," he writes, "is a fly which many fishermen are not acquainted with. It is made up as follows: Pure white wing, orange silk body, and orange and black hackles with the tips being orange. It is very effective for both brook and brown trout and, personally, I think that if brook trout can't be taken with it the fisherman might as well go home. This fly can be purchased only, I believe, through Dr. H. W. Lyte, 427 North Street, Allentown, who makes it. Hooks, numbers 10, 12, or 14, are principally used."

Wyoming County

Four trout streams in Wyoming County are outstanding, Mehoopany Creek, North Branch Mehoopany Creek, Bowman's Creek, and Meshoppen Creek. Mehoopany and the North Branch are both mountain streams, swift and rocky. The trout fishing in Mehoopany Creek is all above Forkston, where brook trout predominate. To reach the best fishing in this stream means plenty of walking to the upper waters, which may be reached over highway route 487, turning

off route 220 at Dushore. From Ricketts on route 487 it is necessary to walk.

While the North Branch of Mehoopany Creek is somewhat similar to Mehoopany Creek in character, it is not so swift and drains some cultivated land. Brook trout and occasional brown trout are taken from its waters. The lower waters of Mehoopany Creek and the Branch are accessible at Forkston on highway route 87 either from Tunkhannock on route 6 or from Dushore on route 220.

Bowman's Creek, another favorite trout stream, may be reached on route 92, off route 6 at Tunkhannock, or from Wilkes-Barre on route 309, turning to route 92. The creek flows through Noxen.

Good meadow fishing is available on Meshoppen Creek and its two tributaries, Riley and White Branches. These streams flow chiefly through meadow land, although their banks are brushy. Brook trout predominate. They may be reached at Meshoppen on Route 6.

Bradford County

Shrader Creek, a mountain stream, is the only outstanding trout water in Bradford County. While brook and brown trout are present in this stream, the brookies predominate. Absence of roads near it makes stocking from the railroad necessary. It can be reached from Towanda, which is located on route 6 and 220, via Monroeton to Powell, then taking a dirt road paralleling the stream to Laquin, a distance of 10 miles. All of the trout fishing is above Laquin.

Sullivan County

In Sullivan County are the famous Loyalsock, the Little Loyalsock, Double Run, Lopez Creek, Hogland Branch, Glass Creek and Black Creek. These streams are all swift-flowing mountain waters in which brook trout predominate with the exception of the Loyalsock and Little Loyalsock where brown trout are numerous. They may be reached on route 220 from Dushore.

Bills in Legislature Affecting Your Fishing

By KENNETH A. REID

Member, Board of Fish Commissioners

OUT of the maze of bills on every conceivable subject presented in the present session of the Legislature, two that are vitally important to the fishermen and their Fish Commission have finally appeared. The strides that the Board is able to make in the future for the improvement of your fishing depends to a very large extent on the Legislature passing these two very desirable bills. Together with Senator Thompson's pure streams bill #273, which will likely be amended slightly as it applies to active coal mines, they represent the most important pieces of legislation pending in the present session as far as fishing is concerned.

Senate Bill #819 by Mr. Lanius, is by all odds the most important bill on the calendar as far as the operation of your Fish Commission is concerned. Briefly stated it would confer upon the Board of Fish Commissioners broad discretionary powers comparable with those enjoyed by the Game Commission under Section 509 of the Game Code. Although many fishermen do not seem to realize it, the Board of Fish Commissioners under the present Fish Code does not have authority to do most of the things that these same fishermen are constantly urging us to do, but must have an act of the Legislature for each trivial change in size limit, creel limit, season, etc. In the matter of closing tributary and headwater streams as nursery water, the Fish Code limits us to "one small stream in any one county."

The meat of Senator Lanius' Bill #819 reads as follows: "To aid in the better protection of fish in water wholly within this Commonwealth, the Board may also reduce or increase open seasons and catch, possession, size, and season limits, or may close or open seasons as in its judgment may be necessary to conserve the future fish supply in any portion of the inland waters or throughout the entire Commonwealth." The passage of this bill would give to the Board the authority that it vitally needed to bring the antiquated fishing regulations up to date and in keeping with the greatly increased demand on our fishing waters that has grown constantly during the last twenty years. During this period, when game bags and seasons have been progressively changed to keep pace with the increased demand of hunting, there has not been a single conservation measure enacted in the Fish Code, save the inadequate compromise measure enacted in the Fish Code, of the last session in reducing the daily creel limit on trout from twenty-five to twenty. Is it any wonder that fishing is not what we would like to have it?

In urging the passage of this bill, I realize full well, as a Member of the Board, that in the exercise of these discretionary powers we will be inviting much additional criticism, for you cannot get all fishermen to agree, but I would much rather face the music than hide behind the skirts of the Legislature when we are asked to make a

controversial decision as is the case under the present limiting code. The passage of this bill to the Fish Commission will be like releasing the brakes from a car that is laboring up a hard climb. The organized sportsmen of Pennsylvania are solidly in favor of this bill and the legislators should be delighted to pass it—if for no other reason than to rid their calendar of a hundred and one petty bills that are presented every session to change size limits, seasons, creel limits and other minor matters that should properly be handled by and at the discretion of your Board of Fish Commissioners.

\$2.00 License Bill

House Bill #2112 by Messrs. Westrick and Chervenak, purposes that the resident fishing license be increased from \$1.50 to \$2.00 with the provision that this additional fifty cents from each license "be set aside in a fund separate and apart for the acquisition, maintenance and improvement of public fishing waters."

If the fisherman looks on his license as a tax, any amount is too much; but if he looks on it in its true light, namely as an investment or a contribution to the cause of improved fishing, it has an entirely different aspect. The day is long since past when we could take fishing for granted as a pure gift from a bountiful nature. Without the present activities of the Board, inadequate as they may be from an idealistic standpoint, the sport of fishing would speedily become a lost art in the Commonwealth of Pennsylvania.

The most convincing argument in favor of this license increase that I can think of is to again refer you to the history of the world famous Pennsylvania Game Commission. In 1927 when the hunting license was raised from \$1.25 to \$2.00, a mighty howl went up from many hunters who had not thought through in the matter. In the comparatively brief period of time since then the Game Commission has purchased nearly half a million acres of game lands that stands as a monument to the wisdom of this small increase and a guarantee of public hunting for not only the present, but future generations of hunters, against the growing tendency of individuals and clubs to post their land against public hunting. It would be hard to find a hunter today who would be willing to give up these lands in order to get back the insignificant sums that he paid into this fund that made these purchases possible.

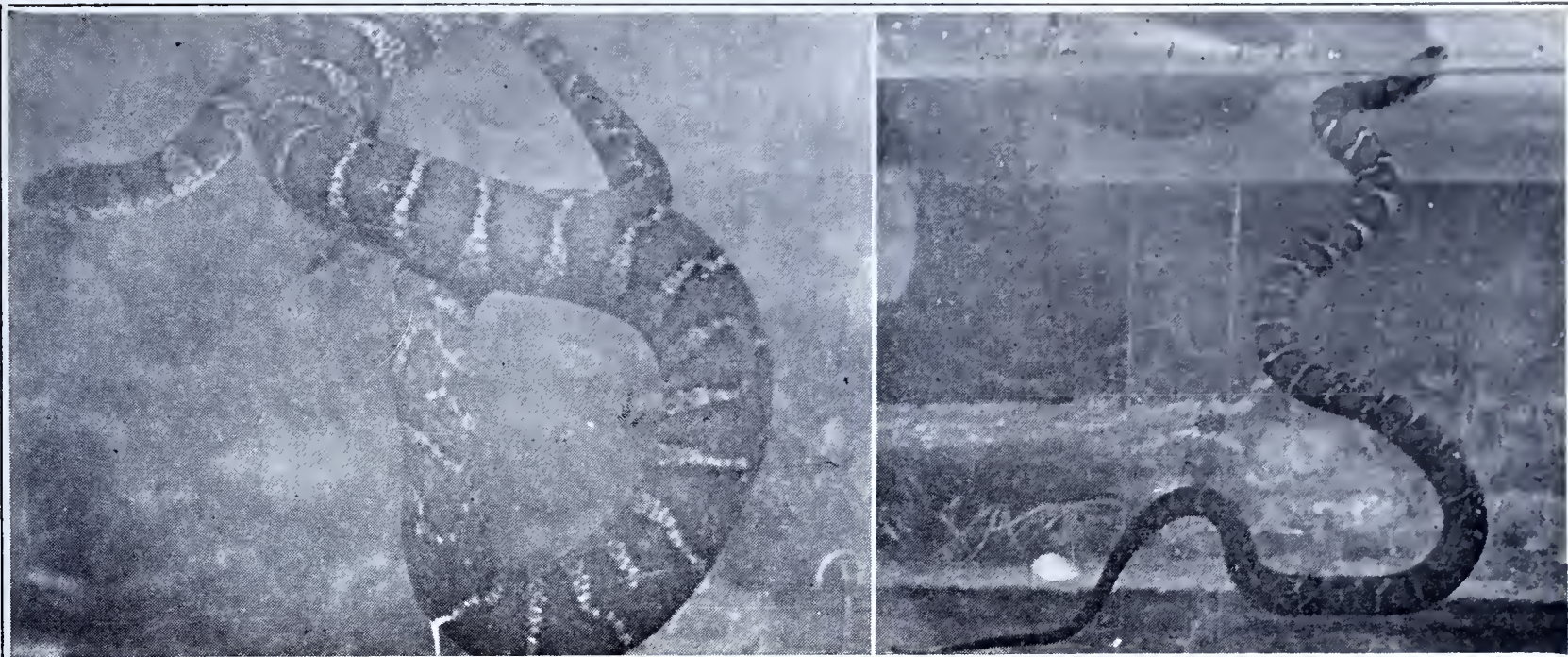
As opposed to game, fish in Pennsylvania have no place that they can call their own. There is some fishing on state Game Lands, to be sure, but they were not purchased with streams in mind and too often the really desirable streams are on private land nearby. Likewise on state forest lands, other considerations have often eclipsed those of fishing, with the result that on state as well as private lands, fish lead a precarious existence and live on the "crumbs" that are left after other primary uses have been taken care of.

Practically every thinking sportsman realizes that there is more to the fishing problem than the mere stocking of fish—in waters belonging to others and where there is no assurance that either the public will not be barred from fishing, or the fish themselves exterminated by pollution or some other agency. Both as a guarantee of public fishing in the future and as a field for a long time program of intelligent fish management and control in public fishing waters as a means to getting much better returns from stocking, the fishermen of Pennsylvania vitally need to own their own waters. The demand for desirable fishing waters is so great that the best waters are being taken up by private clubs and the future of public fishing is in serious jeopardy. The handwriting is on the wall and we must act before it is too late if we would save these waters for ourselves and our children.

The passage of this bill would put approximately \$150,000 a year in this special fund for the "purchase of public fishing waters" at an annual cost to each fisherman equivalent to one 50¢ lunch or a few packs of cigarettes—or two good flies that he loses in the limb of a tree or the mouth of a good fish through carelessness! Based on the cost of trout that he catches as sport, (which will cost the average fisherman from \$5.00 to \$10.00 per pound if he is honest about it), this 50¢ increase is equivalent to just about one ounce of trout—or a tiny undersize fish of about 5 inches! Except for the man who does not have to go beyond his front yard to fish and who fishes with a cut pole and string, this 50¢ increase in the license would represent such a small part of his fishing expense as to be negligible, and as a land-owner needs no license to fish on his own land, most of even this rather limited class would not be affected.

Now, let us see what this increase of 50¢ would do for fishing and the fishermen. In addition to making possible the purchase or lease of narrow strips aggregating hundreds of miles along our major streams that are in greatest jeopardy of posting, it would enable the Board to purchase outright desirable headwater or tributary waters for intelligent management to encourage natural reproduction and growth. It would enable us to place a number of "Spring Creek Projects" in different parts of the state so that they would be conveniently accessible to all of our fishermen, and it would enable us to intelligently improve many other streams so that they would carry more and larger fish per mile and thereby improve fishing generally.

In addition to streams, this fund would enable us to purchase land where the topography suggested backing up considerable areas of water by large dams for lake and pond species of warm water fish, thereby making it possible to enjoy fishing where none exists today. The benefits to the fisherman from the passage of this bill



JUST TO REMIND YOU—IT'S TIME TO GET AFTER THE WATERSNAKE

BOARD MEMBER APPOINTED

Appointment of Charles A. French, Ellwood City, to the Board of Fish Commissioners, has been announced by the Governor's Office. Mr. French's appointment for a term of six years was recently confirmed by the Senate. He succeeds John Hamberger of Erie.

Keenly interested in the Pennsylvania conservation movement, Mr. French has for years advocated practical fish conservation. With his appointment, Ellwood City, the home of the late Mathew A. Riley, whose death was mourned by hundreds of sportsmen throughout the state, is again represented on the Board.

He is secretary of the Northwestern Federation of Sportsmen, an organization now numbering 75,000 members and a past president of the Ellwood City Rod and Gun Club.

MORE CARP FISHING

Word received recently from Peter Patricoski of Mount Carmel indicates that much keen interest has been aroused in that section of the state in carp fishing. He said that at least fifty per cent of the fishermen in the vicinity of Mount Carmel are now carp fishing enthusiasts.

TIP FOR TROUTERS

Writes H. H. Smith of Clarks Summit:

"Here is a tip for you trout fishermen-snake hunters. Carry your gun when you go fishing, but get shells loaded with small shot. You are not then very apt to miss, as often happens when you shoot at them with a bullet."

PENNSYLVANIA FEDERATION OF SPORTSMEN'S CLUBS

Fellow Sportsmen:

Pennsylvania has about 900 sportsmen's organizations and nearly a million licensed sportsmen. Under the existing law, the funds derived from these licenses are used solely for the maintenance of the Fish and Game Commissions, and through the intelligent use of this fund, Pennsylvania has been placed at the head of all the States of the Union as a game producing State and has purchased vast areas for public hunting grounds.

At every session of the Legislature bills are introduced which would lessen the efficiency of your two great Boards, some of them would have stolen our entire fund and others would tend to destroy the very purpose of the Boards, and all would work injury to your investment as visualized in the present status of the Fish and Game Commissions.

It is up to the sportsmen to defend that fund and maintain the efficiency of the Fish and Game Commissions, and this can only be done by a united effort on the part of all.

We urge that you not only express your willingness to join the Federation, but also take an active part in organizing your Division.

The dues are three cents per member.

Please take this up with your Club at once and advise the undersigned of your wish to assist in the formation of your Division.

TEAR OFF HERE AND MAIL TO SECRETARY

Dr. C. A. Mortimer, Sec'y.-Treas.

Pennsylvania Federation of Sportsmen's Clubs,
194 South Main Street, Wilkes-Barre, Pa.

We, _____, are
(NAME OF CLUB)

desirous of becoming affiliated with the Pennsylvania Federation of Sportsmen's Clubs and hereby make application to do so without incurring any financial obligation.

would be almost unlimited, and in conjunction with Senator Lanius' "Discretionary Power" Bill #819, would be the means of improving public fishing at least 100 per cent in the course of a few years. This little 50¢ will pay the fisherman greater returns than any other comparable investment he can possibly make.

If you are sincerely interested in having better fishing, you will actively support this "triumvirate of better fishing bills—Senate Bills #819 and #273, and House Bill #2112." Write your senator and representative to vote for them. They are still in committee as follows: #819 in the Senate Committee on Game and Fisheries, Senator Harvey, Chairman; #273 in the Committee on Forests and Waters, Senator Ben Thompson, Chairman; and #2112 in the House Committee on Fisheries, Mr. William D. Kinney, Chairman.

Before you go fishing, do your part in support of these three bills so that next year and in the years to follow you and your children may enjoy much better fishing.

TROUT FEATURE MARCH STOCKING

Brook, brown and rainbow trout, ranging in size from 7 to 9 inches featured the March stocking program of the Fish Commission. Other species distributed were minnows, to serve as additional forage for game fish, sunfish, and catfish. Brook trout stocked numbered 97, 280, brown trout 16,000 rainbow trout 14,160, sunfish 3,500, catfish 500, and minnows 1,044,700.

Following were streams stocked in the various counties:

Adams—minnows, Marsh Creek, Conewago Creek, Little Marsh Creek.

Allegheny—minnows, Roberts Run.

Armstrong—minnows, Fort Run; brook trout, Hauling Run, North Fork Pine Creek, Patterson Creek, Scrubgrass Creek.

Beaver—minnows, Big Traverse Creek, North Fork of Little Beaver River; brook trout, Big Traverse Creek, Brady Run.

Bedford—minnows, Yellow Creek, Bobs Creek; rainbow trout, Thomas W. Koon Lake; brown trout, Yellow Creek, Wills Creek, Raystown Branch Juniata River, Cumberland Valley Run; brook trout, Deeters Run, Flintstone Creek, Cove Creek, Beaver Creek, Sherman Valley Run, Deaner Gap Run, Bobs Creek, Three Springs Creek.

Berks—minnows, West Branch Pine Creek, Pine Creek, Northkill Creek; brook trout, Northwest Branch Perkiomen Creek.

Blair—minnows, Bobs Creek, Piney Creek, Clover Creek, Canoe Creek; brown trout, Bald Eagle Creek, Piney Creek; brook trout, Bobs Creek, Canoe Creek, Bellsgap Run, South Poplar Run, Sandy Run.

Bradford—minnows, Schrader Creek, North Branch of Susquehanna River.

Bucks—minnows, Tohicken Creek, East Swamp Creek.

Butler—minnows, Little Connoquenessing Creek, Silver Creek; brook trout, North Branch Bear Creek, Bear Creek, Little Connoquenessing Creek.

Cambria—minnows, Slatelick Creek, Bobs Creek; brown trout, Clearfield Creek, Bobs Creek; brook trout, Hinkstown Run, Rogus Harbor Run, Little Conemaugh River, North Branch Blacklick Creek, Saltlick Run, Bobs Creek, Cedar Run, Killbuck Run, Finlay Run, Big Laurel Run, Mudlick Run.

Cameron—minnows, Portage Creek, Driftwood Branch Sinnemahoning Creek; brown trout, Driftwood Branch.

Carbon—minnows, Pohopoco Creek, Aquashicola Creek; brook trout, Aquashicola Creek.

Centre—minnows, Spruce Creek; brook trout, Penns Creek, Benner Run, Laurel Run, Logan Branch, Wallace Run, Mountain Branch; brown trout, Bald Eagle Creek; rainbow trout, Spring Creek, Little Moshannon Creek.

Chester—minnows, Brandywine Creek, White Clay Creek, West Branch Brandywine Creek; brook trout, White Clay Creek, Pusey Run, Valley Creek, Birch Run, Two Log Run, Lyndell Creek, Doe Run.

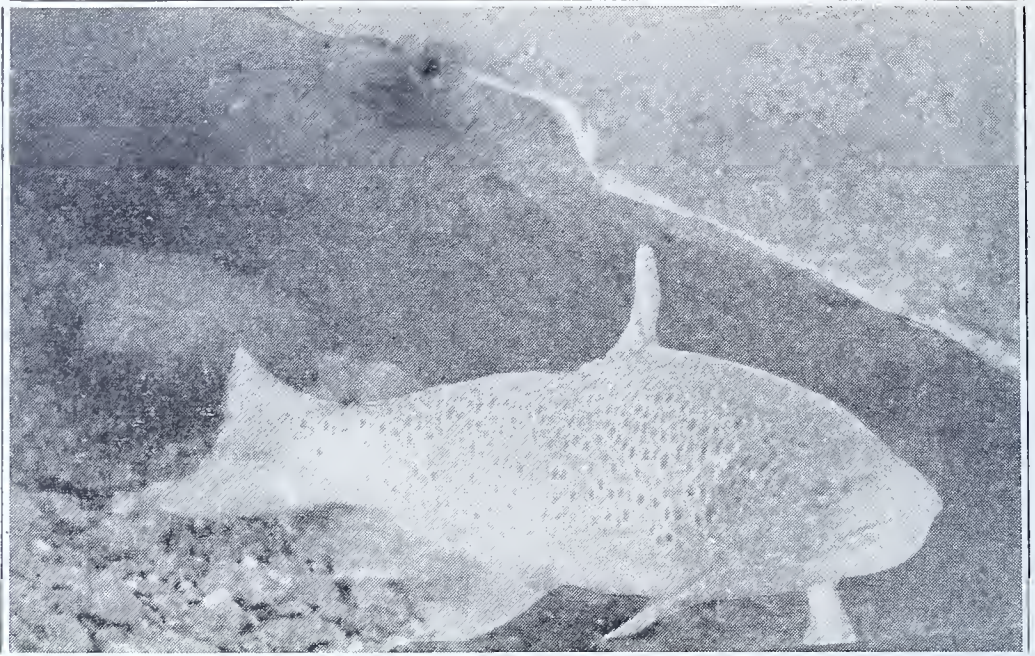
Clarion—minnows, Deer Creek, Piney Creek.

Clearfield—minnows, Lick Run, Deer Creek, Mosquito Creek; brook trout, Wilson Run.

Clinton—brown trout, Lick Run.

Columbia—minnows, Roaring Creek.

Crawford—brook trout, North Branch of Middle Branch of Sugar Creek; brown trout, Thompson's Run, Little Sugar Creek.



BROWN TROUT

Cumberland—minnows, Yellow Breeches Creek; brook trout, Big Spring, Cockley Run, Mountain Creek, Bird Run, Old Town Run; rainbow trout, Big Springs, Yellow Breeches Creek.

Dauphin—minnows, Swatara Creek; brook trout, Stoney Creek.

Elk—minnows, East Branch of Clarion River, Big Mill Creek; brown trout, Mill Creek; brook trout, South Branch Straight Creek.

Erie—minnows, French Creek, Beaver Dam Run; brook trout, South Branch French Creek, Beaver Run, Black Run, Trout Run, Bear Creek.

Fayette—minnows, Cedar Creek, Right Hand Fork of Gillspi Creek, Crab Apple Creek, Star Junction Creek; brook trout, Mill Run tributary to Big Sandy Creek, Pine Creek, Laurel Run tributary to Youghiogheny River, Mill Run, tributary to Indiana Creek, Dunbar Creek, Beaver Run, Laurel Run, tributary to Big Meadow Run, Mountain Creek; rainbow trout, Big Meadow Run.

Forest—minnows, Salmon Creek, West Hickory Creek, Allegheny River.

Franklin—minnows, East Branch of Little Antietam Creek; brook trout, South Branch of Little Antietam Creek, Conococheague Creek; rainbow trout, East Branch of Little Antietam Creek, West Branch of Little Antietam Creek, Falling Springs Creek.

Fulton—minnows, Licking Creek, Cove Creek; brook trout, Wooden Bridge Creek, Little Aughwick Creek, Oregon Creek, Little Brush Creek.

Huntingdon—minnows, Shavers Creek; brook trout, Licking Creek, Little Aughwick Creek, Laurel Run.

Indiana—minnows, Little Yellow Creek, Yellow Creek; brook trout, Brush Creek, Little Yellow Creek, North Fork Little Mahoning Creek, Little Mahoning Creek.

Jefferson—minnows, North Fork of Red Bank Creek, Little Sandy Creek, East Branch of Mahoning Creek.

Juniata—minnows, Licking Creek, Lost Creek; brook trout, Big Run.

Lackawanna—minnows, Gardner Creek, Roaring Brook; brook trout, Roaring Brook.

Lancaster—minnows, Holtwood Dam, Safe Harbor Dam on Susquehanna River, Conowingo Dam on Susquehanna River, Fishing

Creek, Conestoga Creek, Big Chickies Creek; brook trout, Donegal Creek, Seglock Creek.

Lawrence—brook trout, Taylor Run, Deer Creek.

Lebanon—minnows, Snitz Creek, Hammer Creek, West Branch Hammer Creek; brook trout, Hammer Creek, Mill Back Creek.

Lehigh—minnows, Little Lehigh River; brown trout, Jordan Creek.

Luzerne—minnows, Lehigh River, Bear Creek, Wapwallopen Creek; brook trout, Nescopeck Creek.

Lycoming—minnows, Grays Run, Loyalsock Creek; brook trout, Grays Run, Larrys Creek, Muncy Creek, McMurrin Run, Nippenoise Creek; brown trout, Slate Run, Lycoming Creek.

McKean—minnows, Kinzua Creek, Potato Creek; brook trout, Fuller Brook, Kinzua Creek, Chappell Fork.

Mercer—minnows, Little Shenango River, Shenango River.

Mifflin—brook trout, East Branch Kishacoquillas Creek.

Monroe—minnows, Tobyhanna Creek, Big Bushkill Creek, Brodheads Creek; rainbow trout, Brodheads Creek.

Montgomery—minnows, Pennypack Creek, Towanenein Creek; brook trout, Mill Creek.

Northampton—minnows, Hoken da u q u a Creek, Bushkill Creek, Saucon Creek; brook trout, Saucon Creek; rainbow trout, Saucon Creek.

Northumberland—minnows, Chillisquaque Creek.

Perry—minnows, Shermans Creek, Huston Run, Browns Run; brook trout, Green Valley Run.

Philadelphia—minnows, Wissahickon Creek.

Pike—minnows, Raymondskill Creek, Lackawaxen River; brook trout, Big Bushkill Creek, Dingmans Creek, Raymondskill Creek, Little Bushkill Creek.

Potter—minnows, Pine Creek, Allegheny River, Mill Creek.

Schuylkill—minnows, Black Creek, Fishing Creek.

Snyder—minnows, Middle Creek, Penns Creek; brook trout, North Branch Mahantango Creek; rainbow trout, North Branch Mahantango Creek.

Somerset—minnows, Beaver Dam Run; rainbow trout, Laurel Hill Creek; brook trout, South Fork Bens Creek, Elk Lick Creek, Kooser Run, Piney Run, Brush Creek, Tub Mill Run, Meadow Run, Beaver Dam Run.

Susquehanna—brook trout, East Branch Lackawanna River, West Branch Lackawanna River, East Branch Tunkhannock Creek, Tunkhannock Creek; rainbow trout, Starrucca Creek.

Tioga—minnows, Cedar Run, Asaph Run, Kettle Creek; brook trout, Elk Run; rainbow trout, Pine Creek.

Union—minnows, Penns Creek, Buffalo Creek; rainbow trout, Half Way Dam.

Venango—minnows, Little Sandy Creek, Upper Two Mile Run, Pit Hole Creek, Horse Valley Creek; rainbow trout, Little Scrubgrass Creek; brook trout, Upper Two Mile, East Branch Sugar Creek, East Sandy Creek, Horse Creek; brown trout, Pit Hole Creek.

Warren—minnows, Little Broken Straw Creek, Columbus Pond, North West Branch of Spring Creek, Broken Straw Creek; brown trout, Pine Creek; brook trout, Four Mile Creek, Arnot Creek, Phelps Run, Coffee Creek; rainbow trout, Pine Creek.

Washington—minnows, Pikes Run, Maple Creek, Minge Creek, Dry Run.

Wayne—minnows, Lackawaxen River, Crooked Creek; brook trout, Little Equinunk Creek, Big Branch Dyberry Creek, Calkins Creek, North Branch Calkins Creek, Crooked Creek, Johnsons Creek, West Branch Lackawaxen River.

Westmoreland—minnows, Loyalhanna Creek, Indiana Creek, Greenwood Creek, Swerney Creek, Traxo Run; brown trout, Jacobs Creek; brook trout, Furnace Run, Little Pucketa Creek, Loyalhanna Creek.

Wyoming—minnows, Meshoppen Creek, North Branch Susquehanna Creek; brook trout, Bowmans Creek, Leonards Creek, Meshoppen Creek.

York—minnows, Susquehanna River, Little Conewago Creek, Conewago Creek, South Branch Codorus Creek; sunfish, Krentz Creek; catfish, Krentz Creek; brook trout, Orson Run, Toms Run, Furnace Run.

30 TROUT COST FISHERMEN \$325

Trout fishing usually isn't an expensive sport, but it proved decidedly so for two Howard men, on April 19, who paid at the rate of about \$1.80 an inch for approximately 180 inches of trout. Or, looking at it another way, they paid just \$325 in fines for 30 undersized trout they had in their possession when Fish Wardens apprehended them.

The men were Thomas A. Pletcher and his brother, Blair Pletcher, of Howard, who were apprehended Good Friday afternoon on Big Run, near Howard, by Fish Warden George Cross, of Hammersley Forks, Clinton county, and Game Protector Thomas Mosier, of Bellefonte.

At a hearing given them before Justice of the Peace Harry A. Rossman, of Milesburg, that night, Blair Pletcher, who was carrying the basket in which the fish were found, was fined \$25 for fishing without a license, while Thomas Pletcher, who claimed he caught all the fish, was fined \$10 each, or a total of \$300. They were discharged from custody after they had arranged to pay the fines and costs.

—The Centre Democrat.

"WERE OUR FACES RED!"

There are probably many fishermen in Pennsylvania today who might contend that they outrank S. W. Hobson of Easton and two companions as the worst anglers in the state, but they'll have to step if they do it. Writes Angler Hobson:

"The following incident may settle all doubts as to who are the three worst anglers in Pennsylvania. Last summer while returning with two companions from a fishing trip in Pike County we found a small pond we had never noticed before, although we had passed over the same road dozens of times. Fish were feeding all over the pond and as we could find no "No Trespass" signs we lost no time in getting our lines in the water. Although we fished every inch of the shoreline and used a variety of natural and artificial lures, not one of us could get a strike. Finally, the owner arrived and ordered us off his property. We asked, "Are there any fish in this little pond?" "H— yes," he replied, "this is a private fish hatchery and I have over 3,000 adult trout in there."

"Were our faces red, but not from sunburn."

"MAN-EATERS"

George Zimmerman, secretary of the Lehigh County Fish and Game Protective Association, issued a solemn warning a short time before the opening of the trout season, to members of his organization to keep a sharp look-out for a school of "man-eating" trout in the Little Lehigh Creek, a favorite fishing stream in that section of the state.

Zimmerman sent out his alarm after he heard the story of Earl Price, forester of the city of Allentown, about an experience he had along this stream the latter part of the 1934 trout season. Mr. Price says he was fishing with flies along the creek and made a rather bad cast from the shore. He began retrieving his line by use of the reel until the flies were close to the shore when he essayed a back cast.

Just about that time he saw a huge fish make a rush for the end fly and an instant later the monster, which turned out to be an eighteen-inch brownie, hit him on the foot and landed helpless on the grass.

Although surprised by the "vicious attack," Price managed to step on the fish and put it out of business.



AIR VIEW OF SPRING CREEK PROJECT NEAR BELLEFONTE. IT WILL BE OPENED THIS YEAR ON MAY 18.

FREEPORT WOMAN, 61, IS ARDENT ANGLER

Among the thousands of anglers who have braved the none too favorable weather of the opening week of trout season was a 61-year-old woman of Iron Bridge, near Freeport. She is Mrs. Sarah Keesey, widow of George Keesey, who, before his death, was one of the Freeport district's best known and best informed followers of Izaak Walton's favorite sport.

Mrs. Keesey took out a license on Friday and left Saturday for Taylor Run, near New Castle, where she spent the first days of the season. She visited with a sister when not along the streams.

CLEARFIELD SPORTSMEN PLAN ACTIVE SEASON

Sportsmen of Sandy Township, Clearfield County, have organized a club which holds promise of being one of the outstanding groups for conservation of fish and game in the county, according to word received recently from Henry Dubroux, chairman of the Vermin Committee, of DuBois.

A booster meeting was held in February and plans were laid for an intensive vermin drive which is now on full blast. At the present time over 100 members have been enrolled in the club. The merchants of DuBois have donated over a dozen fine prizes for the various drives.

REGULATIONS COVERING YOUNG WOMAN'S CREEK, SLATE AND CEDAR RUNS

During the 1934 fishing season the Board posted Slate Run, Lycoming County, under certain rules and regulations. The experiment met with such success, that this year Cedar Run and the Right Branch of Young Woman's Creek are being included.

The following rules and regulations must be observed:

Fishing permitted on this stream only from April 15th to July 31st, inclusive, and between the hours of 4 A. M. and 9 P. M. Standard Time.

All fishing limited to artificial fly, or bait with barbless hook.

Number of trout taken in one day limited to six.

Number of trout per man per season, thirty-six.

Legal minimum size limit nine inches.

All tributaries closed to fishing at all times.

SLATE RUN (Lycoming County)

SECTION OPEN TO FISHING—From the junction of Cushman and Francis Branches down to its mouth at Big Pine Creek, approximately 8 miles.

CLOSED SECTION—Partly in Potter, Tioga and Lycoming Counties—both Head Forks, Cushman and Francis Branches, and all other tributaries closed as nursery waters. CEDAR RUN (Tioga and Lycoming Counties)

SECTION OPEN TO FISHING—From junction of Buck Run, one mile above Letonia down to the mouth at Big Pine Creek, a distance of approximately 7½ miles.

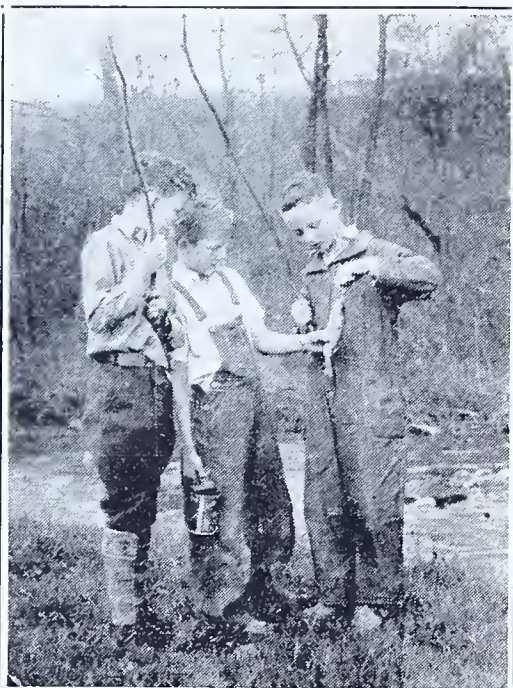
CLOSED SECTION—Cedar Run above the junction of Buck Run, and all tributaries closed as nursery waters.

YOUNG WOMAN'S CREEK (Largely in Clinton County, heads in Potter County)

SECTION OPEN TO FISHING—Right or East Branch of Young Woman's Creek open to fishing from the junction of Lebo Branch and County Line Branches down to its mouth. Also open on the Lebo Branch up stream to Lebo Trail Bridge, approximately ½ mile, and up the County Line Branch to the junction of Baldwin Branch.

CLOSED SECTION—Lebo and County Line above these points closed as nursery waters. Also all tributaries.

For the convenience of the fishermen the actual closure points on the County Line and Baldwin Branches are just above the junction of these two streams where the



JUVENILE ANGLERS INSPECT A
CATCH ON ROARING RUN,
WESTMORELAND COUNTY

road crosses them, the bridges being the dividing line.

THERE ARE NO SPECIAL REGULATIONS ON THE LEFT BRANCH OF YOUNG WOMAN'S CREEK.

PADDY MOUNTAIN GROUP HOLDS ANNUAL DINNER

An open forum pertaining to fishing featured the annual dinner meeting of the Paddy Mountain Fish and Game Association held in Sunbury late in March. Following an address by Kenneth A. Reid, Board member, the sportsmen present discussed various phases of the fish conservation movement in Pennsylvania.

The Association, one of the most active in the state, has been an energetic conservation group during the past four years. Following is a history of the Association furnished by C. H. Love, secretary.

"On August 8, 1931, about a dozen sportsmen who were interested in the fishing conditions around Paddy Mountain section of Penns Creek, held a meeting to see what could be done to better the fishing around that section. After a committee which was selected at that time had met with Mr. Deibler, it was decided to build

rearing pools and raise trout from fry received from the Federal Government.

"The site finally selected was at Weikert, Union County, and work on the project was started at once, with the result that before freezing weather that winter, the members amongst themselves had constructed a 23,000 gallon catch basin with a hundred and forty foot, four inch pipe line to the site of our pools and troughs. During the winter we constructed 12 standard size hatchery troughs, which were ready for our first consignment of fry received April 1932. By the time our first trout were ready to take from the troughs, we had built two 40' x 7' x 4' concrete pools.

"In October 1932 we planted 1500 trout that ran from 4½ to 6½ inches in length, the results of our first year's work. In 1933 we planted 3780 trout. Last October we planted 6502 trout. You will note that while our output has steadily increased, we are by no means satisfied, and are now planning to increase our capacity by building two additional pools this summer. Our goal is to plant 15,000 trout each fall.

"Our membership consists of 432 sportsmen from 19 counties in Pennsylvania, from which you will see that this section is quite a favorite with the trout fishermen.

"We wish to give due credit to the success we have attained, to the fine cooperation we received from Mr. Deibler and the Federal Department of Fisheries."

CANTON SPORTSMEN HOLD ANNUAL MEET

The annual meeting and banquet of the Canton Rod and Gun Club was held in the social rooms of the First Presbyterian Church Friday evening, April 12. The attendance this year was the largest ever. Over two hundred fifty sportsmen of this vicinity attended. The ladies of the church served a delicious roast lamb dinner.

The merchants of Canton contributed upwards of sixty prizes. These prizes included hunting equipment, fishing tackle, dry goods, groceries, garage service, hair cuts and shaves, etc.

The club last year started a fish, game and vermin contest but results were not as good as might have been. However, prizes of two dollars each were given to LaZelle Thomas, Canton, for the largest brown trout, and O. J. Smith of Franklin for the largest pickerel. The contest will be continued for another year and those desiring entry blanks should contact any of the club directors.

At the business meeting, called to order by the president, L. F. Root, the following were elected directors for three years: Clarence Allen, Alfred Wilcox and Wm. M. Foster. These with the six other directors will meet in the near future to elect officers and map out a program for the current year.

The German band from the Canton high school furnished delightful music for the occasion.

BOARD OF FISH COMMISSIONERS

HARRISBURG, PA.

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Enclosed find fifty cents (\$.50) for one year's subscription to PENNSYLVANIA ANGLER.

Name
(Print Name)

Street and Number

City

Do not sit or lie on bare ground. It is harmful and likely to cause sickness. It is better if caught out in the rain to sit on your hat and go bareheaded than to sit on the ground.

BALANCED TACKLE IN FLY FISHING

(Continued from page 5)

outfit should balance at a point about two or three inches in front of the grip.

The leader is also an important item and unless it is chosen with consideration for the size of the line, the caster will experience difficulty in getting the leader to extend itself straight out from the line. The great majority of commercially tied dry fly leaders are too light on the butt or heavy end to cast properly. The tapered point of a fly line will calibrate .030 and sometimes, particularly on English lines, .025. With a tapered dry fly leader with a butt end measuring only .010 or .011, the step down in size between the line and leader is too abrupt and the leader is likely to fall in a bunch of wavy coils instead of extending in a straight line beyond the end of the line. Particularly in leaders of 8 feet or more in length, casting will be greatly improved if the butt end of the leader is at least as heavy as .014 or .015 from where it may be tapered down gradually as fine as you like on the point.

For bass fishing, a longer and more powerful rod is desirable, not because of the heavier average of the fish one may expect to catch, but because of the larger and heavier flies or lures that one must frequently use in order to take bass. For this work, I prefer a 9½ foot rod weighing 5¼ to perhaps slightly more than 6 ounces. Such a rod should have considerable power without being stiff, for the cast of the large fuzzy bass surface lures is somewhat slower than that of the trout dry fly and the rod should have the power to follow through without excessive speed of action which is usually associated with stiffness. The proper weight line for such a rod would be a D level or an HCH tapered.

I can not over emphasize the necessity for getting the right weight line for the weight and action of any particular rod. Many small town tackle stores do not carry a line in stock that is heavy enough for even a 3½ ounce fly rod. The H and I size fly lines frequently seen in tackle stores have no place in a fly caster's equipment as they are entirely too light to develop the action of any practical fly rod. As an aid in selecting the proper size line for any particular rod, I am listing below a table of rod lengths and weights with the proper size line.

Note:—These weights are for good quality modern split bamboo dry fly rods with wood reel seats. If equipped with metal reel seat, the same rod will weigh ¼ ounce more. If the rod is comparatively stiff or powerful, the next larger size line may cast better. Cheap rods or those built twenty years ago, will have a softer or more limber action for any given weight and may require the next lighter line size.

ROD

LINE

Length	Weight	Level	Tapered
7½ Feet	3 to 3¼ ounces	G	HFH
8 "	3½ to 3¾ ounces	F	HEH
8½ "	4 to 4¼ ounces		
8 "	4 to 4½ ounces	E	HDH
8½ "	4½ to 4¾ ounces		
9 "	5 ounces	D	HCH
9 "	5½ ounces		
9½ "	5¾ to 6 ounces		

NIFTY FLY BOX

One of the cleverest fly boxes it has been our privilege to look over is that made by Aaron Cartes of 5249 Sylvester Street, Philadelphia. Aaron, a neighbor of Charlie Wetzel, whose splendid articles on native trout flies and fly tying have featured issues of the ANGLER, has a staunch advocate of this fly box in Charlie, who writes:

"Frankly, it is one of the 'slickest' boxes I have ever run across. It's made of copper and I'm darn proud of the one he made me. It is an ideal box, especially for fanwings where its depth and roominess prevents crushing these flies, a fault so common in ordinary boxes. The cork strips in the box are so constructed that when the flies are imbedded or in position, the hackles always slope forward towards the eye of the hook, another especially desirable feature which causes the fly to float well."

WILLOW PLANTING

In answer to numerous questions from our subscribers and others relative to willow planting on Pennsylvania streams this summer, the following suggestions should be helpful.

Young shoots on willow branches, from 14 to 24 inches in length and from about one-half inch to two inches in diameter are suitable for planting. Cut while the sap is down, they should be placed in a cool, damp place to prevent early sprouting. Planting should be made if possible this month although it may run well into June and still be effective. As an aid to proper planting, it is well to carry along an iron bar or sharp wood stick. The hole made with this instrument should be about half the length of the sprout. The butt end, or end with the largest diameter, should then be inserted in the hole, and earth tamped down about it. From two to four rows of plantings are advisable.

SNAKE EATS WATERDOG

"The item in PENNSYLVANIA ANGLER for March concerning the waterdog which had partly consumed a watersnake recalls to mind the experience of a party of fishermen on Four Mile Run, Westmoreland County, first day of bass season a few years ago," writes Don Robb, chairman of the Fish Committee of the Ligonier Valley Sportsmen's Association.

"One of the party, on observing a rather large watersnake, with an extraordinary bulge appearing at about its mid-length, proceeded to dispatch and cut open the reptile. On examination it was found that the snake had swallowed a waterdog (Cryptobranchus Alleghaniensis) about twelve inches in length.

"It is therefore evident that both branches of these fish destroyers sometimes eat each other.

"The writer and Mr. V. M. Bearer, Dis-



SETH SAYS

By gorry, I ketched thet old trout I been workin' on these past three years, jest four days after openin' o' the season. Nary a purtier fish hev I ever took. Sixteen inches he was

with spots big ez dimes. Ye jest oughter a seed Jerry Tims when he laid eyes on thet big speckled trout. Seth, sez he, reckon there ain't a gonner be enny feller ketch him a fish in the run this year ter beat thet ol' feller.

Thet trout raised merry ned when I hooked inter him. I hed worked in keerful like ter a little ledge back o' some tree roots an' let my red worm float inter the hole natral like. An' then I feels just a few sharp pulls, not the run a feller gits ginerally when a ten-incher takes hold. I figgers right off it must be the ol' trout an' I lets him take it fer a little bit. Well, sir, when I pulls thet bottom like to've busted. Straight off he heads fer under the tree roots, an' I'm a-sayin' ef I hedn't got me a new strong line, I'd niver a got him. Anyhow, I turns him jest in time, an' then the scrap goes on. Thet trout hed me most all-fired busy fer ten minutes, rollin' an' tearin' about ter bust loose. When I gets him up on the bank after thet fight, I durn near turned him loose agin. Somehow, I'm a gonner miss workin' out on him after good rains this year.

Ain't many o' our fellers hed much luck the first day. I run inter twenty o' the best fishermen about these parts, an' most hed only one er two trout. An' it wasn't no wonder, what with the high water, an' the trout fed ter the gills. Jest wait 'till streams gits right, I'm sayin', an' then we'll be git-ting some right smart fishin'.

trict Forester of Ligonier, were members of the party who saw the above incident.

"Later, the same season, the writer caught a waterdog in Loyahanna Creek which measured thirty-eight inches in length. We have never seen or heard of a larger—and wonder how large they do grow."

FIRST DAY NEWS FROM NORTH TIER

How did the boys fare on North Tier waters opening day? The following report from Warden Horace Boyden, Wellsboro, Tioga County, covers the situation. He wrote on April 18:

"Opening of the trout season in Tioga County was very disappointing to many fishermen who go on the first day. There were big floods in all of our streams, and fed by melting of 16 inches of heavy wet snow that fell on April 8 and 9, the streams continue to stay up. So far as I have been able to learn, there have been no trout taken in any of the big meadow streams or in Pine Creek. All fishing has been done in the very small headwater streams and some unusually large trout have been taken. Mr. Brace of Towanda caught 11 trout in Coon Run, a very small branch of the Tioga River, and they ranged in length from 8 to 11 inches. We look for good fishing as soon as the streams get into proper condition, better throughout the season perhaps than if a lot of trout had been taken on the first day."



HERE ^{A_ND} THERE IN ANGLERDOM



DUCK-EATING SNAPPER

Snapping turtles, which rank as ace enemies to fish in Pennsylvania inland waters, also vary their diet frequently with poultry, particularly ducks or young geese. And just to prove it, here is an interesting communication from H. H. Smith of Clarks Summit:

"I was just looking at the shell of a 29-pound snapping turtle that I have in the attic. There is an interesting story connected with it.

"An old lady who lived alone on a small farm, beside a little dam was losing her young ducks or goslings, I forget which. One morning she heard a commotion in the water and looked out to see one of the remaining two in the brood disappear, struggling, beneath the water. She ran out and saw the big snapper, and though she was old and very small (I don't believe she weighed more than seventy-five pounds) she plunged into the water waist-deep and grasped the turtle by the hind leg. The creature immediately released the duck and attacked her. She screamed for help, and to her good fortune a paper hanger who was working for her that day, ran out and grabbing an axe, split the turtle's head.

"I arrived on the scene a few minutes later and she gave the critter to me. He made a good stew and I still have his shell."

Early season catches of big brown trout presage another great year for the taking of these old timers. Topping those in size reported was a 26-inch, 6 pound 8 ounce brown trout caught in Yellow Breeches Creek, Cumberland County, by Wayne Long of New Cumberland, on a minnow. Runner-up to it was a 23-inch, 5 pound 9 ounce brownie from the Little Lehigh near Allentown. It was caught by Elmer Fatzinger, Allentown. Bob James, Mill Hall, caught a 20½ inch brown in Fishing Creek, Clinton County, that weighed 3 pounds, 6 ounces. A 21-inch brownie was taken on the first day by Mr. C. Lewis of Tyrone. Fishing in the lower Yellow Breeches, Cumberland County, on the morning of Wednesday, April 24, Dan Galdino of Harrisburg, landed a brown trout measuring 21 inches and weighing 3 pounds, 4 ounces.

Pike County trout waters lived up to before-season predictions in spite of very unfavorable weather. Fine catches of trout, reported by Warden Frank Brink, were made on opening day in the following streams by fishermen listed: Indian Ladder Creek—Roy Carkuff and Martin Clark, Matamoras, K. Van Camp, H. Ducher and John March, Stroudsburg, and Frank Down, Delaware Township; Dingman Creek—E. V. Steele.

Milford; Dwarfkill Creek—Theodore Fuller and John Supplee, Milford; Sanvantine's Brook—Clarence Van Auken, Mrs. Clarence Van Auken, Calvin Van Auken and John Fisher, Milford; Vandermark Brook—William Heilman, Jean Boilotat, Warner Depuy, Milford; Raymondskill Creek—Elizabeth Drake, Milford; Mill Brook—Floyd Quick and Walter Hanna, Milford.

Warden Joel Young of Fullerton reports good catches on Lehigh Valley streams opening day. Edward Haehnle, president of the Bethlehem Fish, Game and Forestry Association, landed 10 fine brook trout from Saucon Creek. Ed Curry, Bethlehem, scored with five nice brookies and four rainbows on the Saucon. Others making good catches on this stream were Dr. H. F. Liebert, Richard Steager and Clifford C. Ruth. Monocacy Creek yielded good catches to Jack Lantz, Floyd Rothrock, John Birk, Walter Birk and Paul Uhler.

Warden Link Lender, Bellwood, reports nice early season catches of brook trout on Vanscoyoc Run, Bigfell Run, Yellow Creek, Three Springs Run and Potter Creek in Bedford County. Piney Creek in Blair furnished excellent fishing.

From Special Warden J. H. Bergman of Butler comes word of good catches in the northwestern trout streams. Dale Blevin, Portersville, caught three 11-inch trout on opening day, Walter Young, New Castle, five trout, 10 to 11 inches, Norman Boyer, Butler, three 10-inch trout, Joe Mechling, Conoquenessing, seven 10-inch trout, Leo Oysterling, Valencia, four 11-inch brown trout, and Norman Miller, Butler, seven 10-inch brook trout. Great fishing and sportsmen's creels.

I. W. L. ELECTS REID NATIONAL DIRECTOR

Hon. Kenneth A. Reid, of Connellsville, a member of the Board of Fish Commissioners, was elected to the National Board of Directors of the Izaak Walton League of America at the National Convention held in Chicago last month.

Mr. Reid has been a member of the Izaak Walton League continuously since its inception, and is widely known in conservation circles. He is also a former fishing editor of *National Sportsman Magazine*.

Speaking of sucker catches, that made by D. A. Garver and W. H. DeHoff of York just about tops the list this year. Trying their luck in Cabin Branch which flows into the Susquehanna River at Long Level one day last month, they caught 10 suckers having a combined weight of 23 pounds. The largest weighed 3¼ pounds.

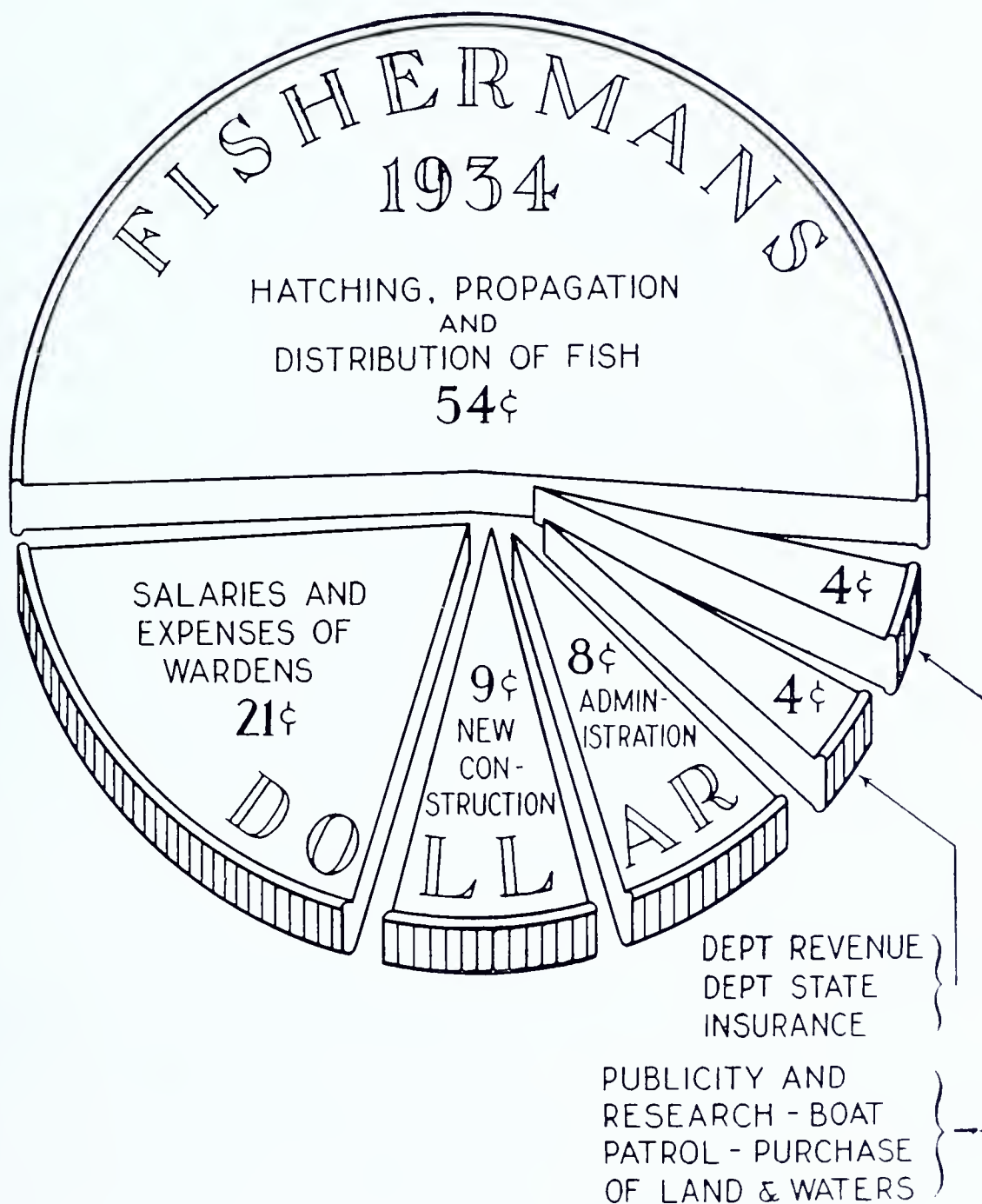
One of the finest rainbow trout to be taken from famous Spring Creek in Centre County this year, was that landed on opening day of the season by Mrs. Howard Lavley of DuBois. Mrs. Lavley left the cottage in which she had spent the night before season opening, walked to the bank of the stream and almost immediately hooked the big fellow. It measured 18 inches in length, according to "Pete" Hoffman of Bellefonte who reported the catch. Mrs. Lavley first learned to fish for trout at the Spring Creek project last year.

A brown trout, 20½ inches in length and weighing 2 pounds, 8 ounces, was taken on the Bushkill, Pike County, by Arthur Hahn, Easton, R. D. 2.



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PENNSYLVANIA ANGLER

JUNE, 1935

VOL. 4

No. 6

EDITORIAL

For Better Bass Fishing Conserve the Bait Fish

Pennsylvania's drive for better fishing will succeed when, and only when, our fishermen turn to the conservation code. This conservation program does not, in a broad sense, apply only to saving bass and other game fish. It covers every type of aquatic life present in the inland waters. Nature's balance permits no interference, and in her scheme of things, minnows are as vital to good fishing as black bass. Destroy or seriously injure the crop of forage fish present in any body of water and the supply of game fish is destroyed or injured. A herd of cattle, fenced in a plowed field, could not exist. In the same light, a school of black bass, roving over a section of stream devoid of food, must perish. More forage is and must be the answer to better fishing in Pennsylvania waters. In retaining this essential natural balance of our streams and lakes, the fisherman may play a prominent role. The toll taken from the game fish food supply in public waters for live bait annually may mean the difference between good fishing or poor in the future.

Game fish abundance hinges directly on the supply of forage available. Without exception, black bass, pickerel, wall-eyed pike and trout are carnivorous, requiring live food in immense quantities for proper growth and increase in number. It follows that to thin down the forage crop,

comprised of minnows, stone catfish, helgramites, crayfish and similar species, is to injure seriously the supply of game fish dependent upon it. In brief, proper balance of life in the inland waters is the keystone upon which must rest the future of our fishing program.

Relationship between game fish abundance and the food supply is clearly illustrated in the instance of the black bass. Increase and decrease in number of bass in stream or lake forms an interesting cycle. When forage is abundant, bass increase rapidly in size and number. Inevitably, if they become too plentiful, the food supply is thinned down, resulting in a corresponding decrease in bass population. Game fish are cannibalistic, and failing to find sufficient other food, turn without hesitation to devouring their kind. In meeting the demand placed upon forage fish by game fish predators, nature has provided that minnows and other species are very fecund, that is, reproduce large numbers of young. So long as this normal increase is not interfered with, the food supply in bass waters keeps pace fairly well with the natural drain upon it.

When bass were first introduced to Pennsylvania waters during the Civil War, a tremendous food supply was available. Favored by every natural factor, their increase in number was amazing. By 1900, these splendid game fish were present in larger streams and lakes in vast numbers. The taking of smallmouth bass weighing five pounds in the Juniata River, for instance, was not unusual. A constantly increasing toll was taken on the forage fishes of our waters and in consequence, the bass schools dwindled. Other factors, of course, were also destructive to the black bass. The ruthless advance of the sawmill, denuding forest lands of virgin timber, nature's reservoir, was forerunner to disastrous floods, and freshets that swept the bass ranges. Illegal fishing was unchecked, and pollution, following rapid industrialization of the Commonwealth, killed thousands of fish, not only bass but forage fish upon which they were dependent for food. This combination of factors resulted in rapid decrease in our bass supply, and served to bring home forcibly the realization that adequate protection and stocking were essential to preserve this form of fishing. Aided by heavy stocking with bass ranging in size from three to seven inches by the Fish Commission and favorable spawning conditions during the past five years, our black bass have staged a splendid

comeback. Reports available from widely scattered sections of the state indicate that the bass cycle trend is now upward.

Retaining the present supply of bass in our waters and attempting to increase it is of utmost importance to the fishing program. In line with this thought, conservation of the supply of natural food in bass waters is, I believe, a major step toward fishing comparable with that of thirty years ago. At the present time, the drain upon the natural food supply comes from two sources, first, the demand for this type of forage by game fish; and second, widespread use of minnows and other forage fishes as live bait. Obviously, the first restriction, that of game fish to forage fish increase is imposed by nature and is a necessary factor in the natural balance of stream or lake. Our fishermen may aid in preserving this balance by turning from live bait to artificial lures for their sport.

Casting artificial bait—flies, spinners, and other lures—is rapidly coming to the fore as a favorite method of angling. The advantages in fishing of this type are three-fold. First, it relieves the drain upon the supply of forage fish in our waters. Second, it permits the fisherman to match his skill against the cunning of a fighting bass, pike-perch, trout or pickerel, and relieves him of the bother incident with keeping bait alive and lugging a minnow pail on his fishing trip. Third, and most essential, this type of angling will save annually thousands of undersized game fish that taken on live bait are killed. From the standpoint of catches, some of the record-breaking fish each season are caught on artificial lures.

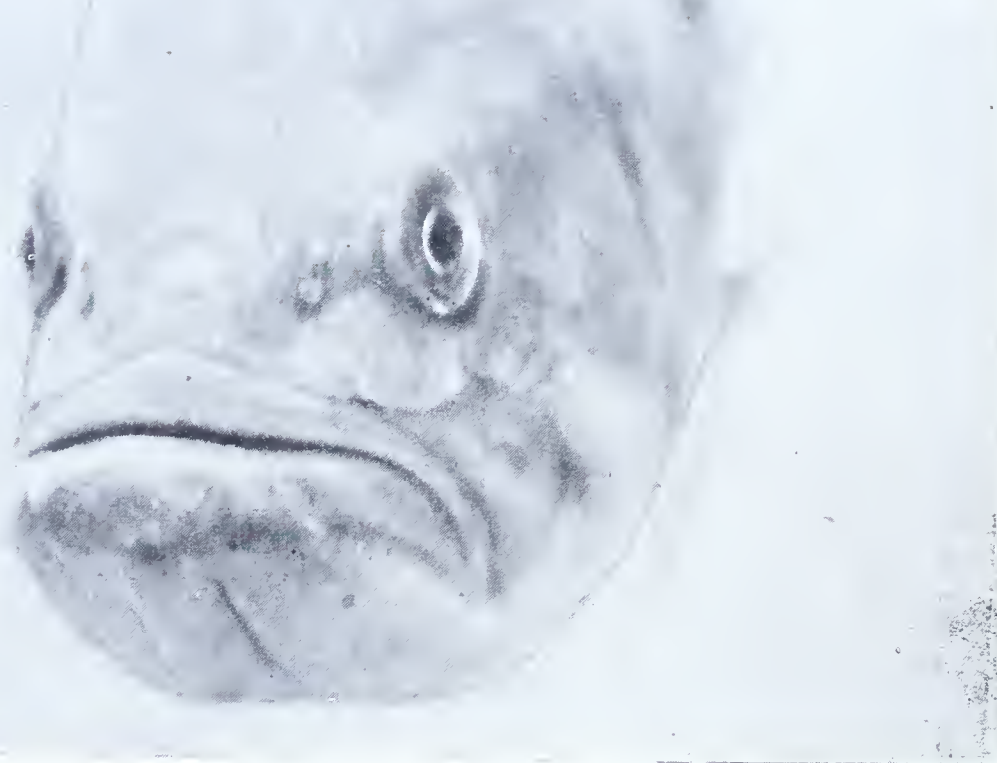
Fishing for game fish with the artificial fly or fly and spinner, and other one-hook lures is undoubtedly the pinnacle of the angler's art. Taken on this type of lure, a game fish weighing one pound will stage a thrilling fight. Then there is linked to this form of fishing the added pleasure of precision in casting and the use of tackle light enough to give in every lunge of a battling bass or other game fish a keen thrill to the angler. Finally, and of greatest importance, fly fishing is a true conservation method within the grasp of the average fisherman. When a fisherman adopts this type of sport he is playing the fishing game according to the finest rules that govern it.



Commissioner of Fisheries

Dolomieu

Life Sketch of



WRAITHS of mist eddied over the wide shallows of a rock-bedded central Pennsylvania stream as *Micropterus Dolomieu*, the giant smallmouth bass, cruised smoothly into a small reed and lily-pad fringed bay in search of food. For a July morning, the air was cool, the sun just having emerged over the pine-crested ridge, bringing into sharp relief the spear-head outlines of the evergreens. It had been a moonless night, somewhat curtailing foraging of the smallmouth schools, and in many sections of the stream the bass were now feeding.

Dolomieu, plunging in pursuit of a large silver shiner that skipped over the water much as a flat stone hurled by human hand would do, wallowed into the shoreline shallows. As his spinous dorsal fin emerged above the surface, then his great girth and bulk was temporarily exposed to view, a bait caster standing on the other side of the stream mumbled "Well, I'll be —." Not in years had the feeding shallows known a smallmouth of such proportions.

Frustrated momentarily in his foraging, Dolomieu wriggled again from the shelving shoreline to deeper water. And at that instant, timed almost perfectly, a wobbling, flashing artificial lure from the casting rod dropped lightly near the reed bed. There was in the rush of Dolomieu at this strange man-made device, all of the savagery and bull-dog determination that a few seconds before had marked his pursuit of the shiner. His great greenish bronze mottled dorsal surface and girth surged in a maddened swirl on the surface as the bucktail-concealed hook of the lure was driven deeply into his mandible or lower jaw.

Under the impact of Dolomieu's first lunges to tear away from the hook, the slender casting rod arched past the breaking point for an ordinary rod, but like a thoroughbred in the hands of the skilful angler it gradually but surely tired the giant bass. Time and again, the casting reel whirled as Dolomieu continued his desperate runs for freedom. His was an underwater fight, unlike that of smaller members of the species, with their spectacular breaks from the surface. In the end, the angler won, and a six-pound smallmouth bass that toppled all records for this stream was rolled, completely exhausted, into the shallows that for years had been part of his foraging grounds.

The life story of Dolomieu is one of the most fascinating chapters in the lore of the fresh water. Eight seasons of relentless pursuit and killing in a stream teeming with aquatic life had developed his amazing length of 23 inches and a girth exceeding 19 inches. Let us turn back to his beginning.

* * * * *

It was one of those warm, balmy days in early June, when the sire of Dolomieu set out from the spawning bed, prepared with exacting care, to entice a female bass to the nest. For several days prior to this climax in the spawning episode, he had busily removed all foreign objects in his mouth and had then hovered over the smooth gravel spot, protected by a submerged log at the lower extremity of the flat, his caudal fin or tail and fins serving to brush clear of all sediment the pebbles and gravel to which the eggs must cling.

A slightly concave and shallow bowl, possibly two feet in diameter, had been the result of this painstaking preparation.

Stream conditions that year pointed to an extremely successful bass spawning season. The water was running fairly low and clear, and a gradual rise in temperature had hastened during the past two weeks internal development of the eggs in the female fish. This condition was in direct contrast to that prevailing two years before when rainstorms had swollen the stream to a brown, heavily silt-laden torrent that had smothered thousands of eggs of Dolomieu's kind. Many of the adult males had deserted their nests that year and generally speaking, the bass crop had been a failure.

The sire of Dolomieu did not require much time in finding a mate. Returning to the nest with him was a female of equal length, her girth and breadth accentuated by the ripe eggs which she was about to deposit. When the eggs intermittently dropped and clung to the cleanly washed nest, Dolomieu's sire hovered close, fertilizing them with deposits of milt as the female extruded them. Finally, she departed and to the male was left care of about 2500 eggs and protection of the young.

Fidelity to his charge characterized the big smallmouth during the next eight days in which the eggs were hatching and the ensuing two weeks when the weak and helpless young, absorbing the yolk sac, were still dependent on his care. His fin movements, seemingly almost constant, aided in aerating the nest and in keeping it clear of silt. Savagely, he drove away any other fish that ventured near, and fed little if any. No matter how small or large the object that approached the bed, whether a sluggish sucker or a small catfish, the male parent charged it viciously. Then could an unscrupulous fisherman take heavy toll from the smallmouth schools, for spoon bait or any other fishing device was invariably fatal to a bass on guard. And once removed from his charge, the eggs or young were easy prey for even the minnow schools which swarmed in the stream. It is a wise Pennsylvania law that forbids bass fishing in our inland waters until July 1, when almost invariably the spawning period of the smallmouths and largemouths has ended and the young are already foraging for themselves.

After Dolomieu had emerged from the egg, he lay for a number of days on the nest. Steadily, however, he and other members of the brood gained in strength, making short sallies nearer and nearer to the water surface, and returning to the nest at nightfall. During the first few days of his life, the young bass bore slight if any resemblance to the broad girthed, husky little fish that would be taking toll from stream life two months hence. He was little more than an ungainly black tapering atom with

Strikes

Smallmouth Bass

a large egg-shaped yolk sac in this first stage.

Even before Dolomieu's sire had deserted his offspring, to return again and devour them if he found them, nature had flourished a wand of abundance in the form of food for the tiny bass. With the rise of water temperature in this unpolluted Pennsylvania stream, countless swarms of net plancton had made their appearance. And it was upon this lavish food supply, many of the organisms barely visible, that the young Dolomieu found his chief nourishment during the next 15 days. Not long after this, tiny silver shiners were seized and devoured as were water insects. These two stages in his growth were similar to that of others in the brood. Gradually they scattered out along the shoreline, singly or in pairs, curious questing little fellows finding in this water world to which they had come many marvelous things. In the luxuriant vegetation of the shallows, ample protection was afforded them.

For a smallmouth fingerling, the growth of Dolomieu in these early stages was amazing. Apparently his voracious hunger knew no appeasing, and in consequence he soon outstripped his brothers and sisters. And then one day, he struck another smaller member of his kind and devoured it. That episode marked the beginning of his cannibalism. Whenever occasion permitted thereafter, he gorged himself on food in the form of the rich flesh of other young bass. Baby pickerel, slender exceedingly graceful little fish found in the back eddies and weed beds of the stream also served to vary his diet at every opportunity. In consequence, by the time the bass went into their period of dormancy in late November of that year, Dolomieu was an exceptionally husky fish, nearly seven inches in length. While preparing for the winter months of inactivity, he had, in common with his kind, gorged himself with food during the autumn days. When he entered a hollow submerged log for the winter fast, there was an extra supply of fat and tissue upon which to draw.

Save for one outstanding event, the second season for Dolomieu was somewhat typical of the first. The dark green mottling of his sides and back, superimposed on a brassy green background, stood out vividly. His prominent head merged gracefully into a compactly knit body, the spiny rayed front of the dorsal or back fin, with nine stiff pointed rays, blending into the large posterior section of soft rays. All of his fins were prominent, and the broad caudal or tail fin gave the appearance of being tipped with black. Radiating from the eye to the gill cover were a number of dark wavy stripes. Like the front part of the dorsal fin, his ventral fins and the anal fin, directly behind the vent, were bordered on the front sections by spike-like rays. Small strong scales formed a pro-

TECTIVE covering over his body. The lateral line, while not so prominent as that in his cousin, the largemouth bass, still was visible, extending from the gill cover to the base of the tail. Seventeen rows of scales were present on the cheek of Dolomieu. His jaws terminated at a point almost directly under the front angle of the eye. One glance at him identified a game fish without a peer, a game fish armored by tough scales and piercing spines for combat.

As a yearling, he took heavy toll from the minnow swarms, the stone catfish so abundant in this rock bottom stream, the helgramites, larva of the Dobson flies that became dislodged from rocks on the riffles and were washed, rolled up in round dark little balls of flesh into the current.

And it was a helgramite that almost proved his undoing in the second year of his life. One of these tidbits he struck at eagerly on a July afternoon, following a shower when the stream was milky. This was his first experience with the sharp barb of a hook. Fortunately for him, it was imbedded lightly and he succeeded in tearing away after the first short run that had terminated in setting the barb.

By the time he was ready to go into dormancy that year, Dolomieu had achieved a length of eleven inches. In contrast with the later amazing girth that he was to develop, he was now a comparatively racy looking fish. In the third year, when he had attained the fifteen-inch stage, Dolomieu started to develop girth, and by the end of the fifth year of his life, he was a powerfully proportioned bass of slightly better than 19 inches. It was at this time that he, in company with three other giant smallmouths, followed in the wake of a school of big suckers during sultry afternoons in midsummer. As the bottom feeders probed about, sometimes tidbits such as crayfish or other tempting morsels particularly appealing to the bass were temporarily exposed to view. Frequently, too, on moonlight nights, Dolomieu foraged actively, much of his food consisting on such occasions of stone catfish that emerged from their lairs beneath the rocks as darkness fell, crayfish and other highly desirable bass food, which was rarely in evidence during the daytime.

Water conditions governed to a noticeable degree his remarkable protective coloration. After a heavy storm, when muddy water swept through the pool and flat, Dolomieu

in an incredibly brief time changed from the rich bronze-green that distinguished him in clear water, to a yellowish tinged hue in keeping with his suddenly altered environment. This chameleon-like quality was just another way in which nature favored him and his kind.

It was in the month preceding annual spawning of the smallmouths, that Dolomieu gorged himself with food, much as he did in preparation for the hibernation period. Then the great bass was a swift shadow of terror for life in the flat, even pursuing fair-sized suckers on occasion and devouring them. Always his code called for the killing of live, moving food. Dead fish were left to scavengers of the stream, such as the eels, for consumption. After striking another fish, he held it momentarily sideways between his jaws, then turned and swallowed it headfirst. In this way, fins and scales of the victim offered no obstacle to easy swallowing.

During the last years of his life, Dolomieu fathered thousands of young bass, thus aiding in perpetuating his strain in the stream. Many of these hardy young later were to play stellar roles in harassing the minnow schools and providing outstanding sport for fishermen.

In closing this episode of Dolomieu, the smallmouth bass, perhaps we should say that his range in the stream was not confined to the deep flat and pool from which he was taken that July morning. Frequently, on another flat more shallow but teeming with minnows and other live forage, Dolomieu ranged, and this water was half a mile upstream. Again, he might have been observed in similar foraging territory below the pool in which he spent most of his life. Generally speaking, however, we may place the extent of his range at approximately one mile of the stream, a mile of water swarming with food so essential for increase in number of the smallmouth bass.

Perhaps more than any other game fish, Dolomieu the great bass typifies the endless struggle for existence in the water world. For the code of the smallmouths dictates "To live is to destroy."

* * * * *

The life sketch of *Micropterus Dolomieu*, the smallmouth bass, is second of a series of articles by your editor on the habits of outstanding fresh water game fishes in Pennsylvania.



100 Bass — And How

By CHARLES K. FOX

DID you ever see an angler wading one of our beautiful Pennsylvania bass streams, flipping the lightest of pork rind lures or weighted flies and spinners with his bait casting rod? Brother, if you did, you saw a man who catches his share of bass. He employs a method, which day in and day out, will hold its own with any that can be used.

The bait caster can cover water more thoroughly and more easily than can the man who fishes with live bait or the artist who flicks his artificials with the fly rod. He can shoot his lure almost 150 feet and all he needs is several feet for a back cast. He can fish the surface or work his lure just off the bottom for long distances. By lifting the rod tip sharply just before the lure hits the water, it alights with a gentle spat which attracts bass; twenty-five to fifty per cent of the strikes occur before the lure has traveled one foot through the water. The single hooks rarely foul. This man fishes places that other men cannot reach, and *he is fishing far away where bass know nothing of his presence.* The easiest fish for the bait caster to catch is a bass which is chasing minnows. Because of his control over such a large expanse of water he is frequently offered the opportunity to work on such a fish, which he will raise half the time.

His rod is light with a whippy tip, five and one-half or six feet in length; his line is a ten pound test, and his good reel has brought him pleasure for more than ten seasons. His leader—that all important leader—is ten feet long cut from a coil of ten or fifteen pound test artificial gut. It is soaked well before use and discarded after a hard day's work when it becomes frayed and milky. In his kit are his small "gadgets" metal and wooden lures one-fourth to one-half ounce in weight. Many are those most deadly of all baits—the fly, spinner, and pork rind combination. The small wooden plugs and spoons have their places too, as do bottled pork chunk and pork rind.

One evening we were walking in the high grass along the Conodoguinet preparing to enter the stream to cast. The weeds were infested with grasshoppers and frogs, which jumped into the water at our approach. Many swam back to shore, but many never got that far; a school of bass started to prey on them. By sneaking down stream and going around a deep stretch in mid-stream, known as the salmon hole, we were located in casting position, well hidden from the fish. Three fine bass were taken out of this school which had left the salmon hole to search for food in the shallows. They viciously struck that weighted tandem spinner.

The best bass stream in this part of the state is York county's Conewago—when it is "right." This stream becomes muddy after the slightest storm and clears slowly. Of the first two months of last season it was clear for just one week. We started



A THREE-POUNDER FROM
SHERMAN'S CREEK

down stream from Sheeps Bridge and fished about one-half mile. Three hours produced the limit, ten bass, all taken on a single hook pork rind lure. Most of these fish were lying in wait for food along the opposite bank and took the one-half ounce spinning bucktail as it skipped into the water, through the weeds and grass. It is interesting to note that trespassing is prohibited on the productive side of the stream, and the center of the creek is too deep for wading; only the bait caster has a chance to properly fish this stretch of water.

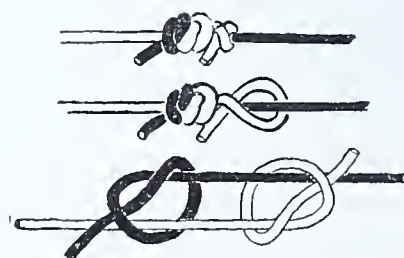
There are some wonderful bass at Gibson's rock, on Sherman's Creek, but, boy, are they hard to catch? This is very deep water with great shelvings of rocks for those three pounders to hide beneath. It is fished to death with live bait, but only a small percentage of the fishermen are rewarded with its charms, highly educated bass. We have caught them there by two methods. First, by fishing a sinking lure very deeply and slowly along the ledges; and second, the more productive way, by casting over fish we saw feeding in the evening. The stream at this point cuts between two mountains which cast their shadows on the water and tend to lengthen the eventide and consequently the feeding hours of the bass. With our metal lures and little plugs we can cover this large pool thoroughly, but in no other way can this be done.

River fishing is fascinating, particularly where the water eddies and swirls around

rocks and undermines jagged ledges. Such a place is Bailey's Rocks on the Juniata. When the river is low, it is possible to wade out on the great rocks, which stretch across the river, and cast into the pools and channels below. Here nature has done peculiar things. Instead of the placid river gently flowing onward it is interrupted by the teeth of a great rock saw which penetrates its course forcing the water to boom through openings forming swift channels between which are placid pools. The water is deep, and big bass like deep water in the summer, particularly when it is aerated; "salmon" or wall-eyed pike love these spots too. We have heard men say that when they fish that place they feel that they but scratch the surface, so much fine water lies beyond. Why not take the short rod and the artificials and comb every part of each pool and channel; it will take hours but so much the better. Incidentally every "salmon" we have seen taken there took a plug, and in every case it was well below the rocks from which one fishes.

We wade whenever possible, and we have found several stretches in the Susquehanna, in the vicinity of New Cumberland, which are simply made to order for us. Parallel rows of shelvings about seventy-five feet apart run diagonally across the river from the west shore to the islands. Deep, boulder strewn water lies in all directions, and in some places are found undermined shelvings within easy casting range. It gave us a great thrill to take eight bass, all between eleven and fourteen inches, from one of these watery lanes one hot August day last summer. A small edition of the old fashioned underwater plug with one propeller seemed to be just what they wanted.

Then there was that golden evening on the little Bermudian. The day was hot, the stream was clear, and the bass just would not strike. As the sun was setting we slumped down, pretty well tired out, on a rock in midstream. A few bass started to chase minnows so we tied on a pork chunk, peer of all surface baits. In the next half hour four bass broke the surface near us, four casts were made and each of those four bass took a turn at hitting that pork. From our position on the rock we



KNOT USED TO FASTEN CASTING LEADER AND LINE. BE SURE ALL PARTS OF KNOT ARE VERY TIGHT.

netted two; one threw the hook when he jumped, and our strike missed the other.

When the curtain fell ending our '34 campaign we had taken over one hundred bass; but the curtain was rung down on Labor Day, and we missed the cream of the season, September and October. Of these one hundred bass, only those over 11 inches were kept, the rest gently returned. Don't 35 bass fill a sportsman's bag for one year, and who enjoys killing and taking home

bass under 11 inches? We have a suspicion that capturing and releasing bass helps a stream considerably. Those fish did not enjoy being caught and handled, they will not completely forget and ignore this experience, and they will not be so readily deceived in the future. May they wax strong and large; may they be fruitful and multiply; and, once again, may they bring joys and thrills to those who seek piscatorial adventure.

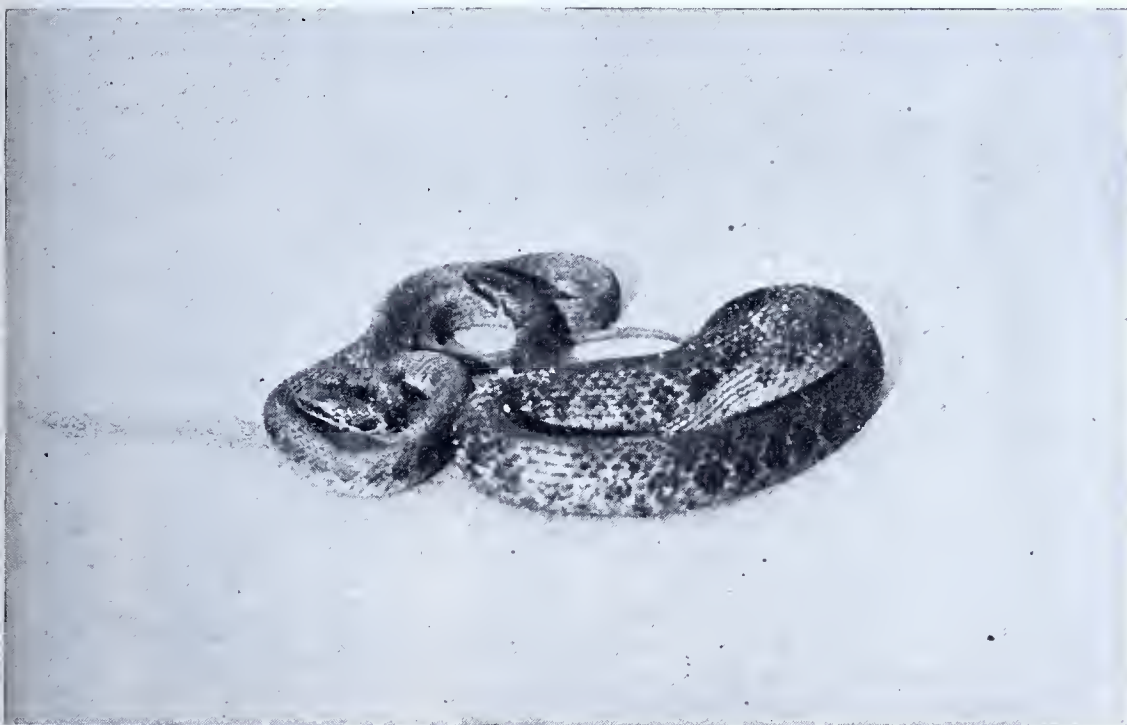
BOARD MEMBER NAMED

Centre County, famous for its great trout waters—Spring Creek, the Bald Eagle, Elk Creek and Penn's Creek, is now represented on the Board of Fish Commissioners by Harry E. Weber, of Philipsburg. Appointed recently by Governor George H. Earle, Mr. Weber has been confirmed by the Senate. He succeeds Roy Smull, of Mackeyville, resigned.

Hailing from a trout fishing area second to none on the Eastern seaboard, Mr. Weber is thoroughly conversant with practical fish conservation and is an ardent sportsman.

Kirtland's Water Snake

By PAUL L. SWANSON



FINE SPECIMENS OF KIRTLAND'S WATER SNAKE

TO most of us a water snake is merely a water snake, but there are some anglers who like to be able to distinguish one snake from another. The Banded Water Snake and the Striped Water Snake, or Queen Snake, are fairly well known to those who are more than casually interested in snakes. It will be of interest to them to learn of a third species of water snake (of the genus *Natrix*) which may be found in Pennsylvania.

The Kirtland's Water Snake (*Natrix kirtlandi*) is a small species attaining a length of about 16 inches. The ground color is brown or reddish, with two series of small spots on the back alternating with a series of large black spots on the sides. The spots may be indistinguishable on some specimens however. It may appear similar to a very young Banded Water Snake, but if carefully examined will be found to be quite different. The Banded species is usually blotched beneath, while the ventral surface of the Kirtland's is red with a row of black dots on each side. The former has from 23 to 25 rows of scales and the latter has about 19.

Kirtland's Water Snake is found in the northern portion of the Mississippi Valley, in Ohio, Indiana, Illinois, Wisconsin, and

Michigan, ranging eastward to New York and Pennsylvania. In this state it is a rare serpent, there being official records of only five specimens. The Carnegie Museum has four of these, from Allegheny, Butler and Westmoreland Counties. The fifth specimen is a Delaware County record in the Philadelphia Academy.

In addition to the above, I found two specimens last year near Forestville, in Butler County. They were slightly under a foot in length. This species is not quite as aquatic as the other two. These two specimens were found under boards not far distant from a small swamp. In the middle of September one of them gave birth to four young, averaging a little over five inches long. They fed readily on worms in captivity. Very small frogs, toads and fishes are among their prey.

The rarity of this snake in Pennsylvania should allow it to be unmolested. If collected it should be properly preserved, if not kept alive, and donated to a Pennsylvania Museum. Records from other counties than those mentioned would be particularly appreciated by the Carnegie Museum at Pittsburgh.



SETH SAYS

Reckon I gotter take sides with the younguns when it comes ter one kind o' fishin'. 'Long about this time o' year, I'd jest ez soon ketch me some o' these big sunfish, most ez

broad as yer hand they be, ez enny other fish. They make most all-fired good eatin' an' when it comes ter takin' the hook, they smack it fer fair. Jest the ol' hickory fishin' pole, a middlin' size hook an' a can o' worms an' yer set for sunnie fishin'.

A couple weeks back, I got a hankerin' ter try fer sunnies, an' ez I traipsed up along the crick to'rds the sunnie hole, jest where a shale ledge drops down from the ridge, I sees another feller fishin. The water was right clear, an' I sees right off thet feller wasn't fishin' fer nothin' but bass. He hed one o' these plug contraptions an' he was fishin' right in shaller water where I knowed some bass ter be nestin'. An' shore enuf, ez I comes up ter him, he hooks inter a golwollipin' big bass, an' yanks it in.

Now, then, ef there's one kind o' man-skunk I hate it's one o' these fellers thet's too ornery low-down ter wait afore the season opens fer enny kind o' fish. An' this here feller was even ornrier then thet, fer there he was, takin' a bass from the nest when it was pertectin' its eggs. Enny feller kin ketch bass then, fer they see red ef even a little stone falls near the nest. An' after they're took, it's goodbye ter all them eggs. A feller thet'll do thet sorter thing ain't a fisherman, he's a varmint. He ain't even got the right ter stand in company with fellers thet fishes fer fun an' a fair ketch.

I'm a-tellin ye, he let thet fish go in a hurry. An' what I sez ter him would most make the leaves curl up on a skunk cabbage. After he slinks away like a whipped cur, I starts agin fer the sunnie hole an' hed a right fair lot o' fun. Meetin' thet man varmint was the only thing thet spoiled my fishin' fer the day.

Most live bait fishermen are coming to the viewpoint that fishing with goldfish for bait is a foolish practice. It is hoped that this year, no more of these glorified carp will be thoughtlessly introduced into our fishing waters.

Use Flies—Save Food for Bass

By MYRON E. SHOEMAKER, Enforcement Officer

THERE is one subject among fishermen which is receiving considerable attention and it is doubtful if any one subject ever before utilized so much printers ink. This subject is fly fishing and it is no longer confined to trout alone. The bass is now receiving plenty of attention. One question which is no doubt holding back many fishermen from starting the use of flies for bass is the fact that they are under the impression that bass can only be taken at night. This is entirely wrong. Bass are practically the same as any fish and no one can tell at what hour of the day they will bite. No doubt many big bass are taken during the darkness of night but there also are many taken during the day time by either wet or dry flies.

No doubt the most successful time for bass during the day is in the evening when they start rising for hatches of flies. This, of course, invites the dry flies to be put into use. For a number of years I tried many different lures and the most successful surface lures to date are the Hair Frog and Night Hummer, made by Joe Messinger, and the Bass Bugger made by Harry Weaver, Wilkes-Barre. Last year I actually had twelve bass jump clear out of the water to take these lures in the air. Four bass actually took the lure before it hit the water and all of them were better than two pounds each.

There have been many arguments to sustain the fly fisherman's position in encouraging and establishing the use of flies but there is one point which has received but little comment. Some of the reasons set forth by the fly fisherman are: First it is the highest type of sportsmanship in taking fish—and I do not mean to say that there are not good sportsmen among the bait fishermen. The thrill of a rising fish to the fly is not usually experienced by the bait fisherman; small fish may be released without injury; flies in the end are cheaper and a VAST CONSERVATION of natural food will be insured by the use of flies. It is this last reason mentioned that had received but little comment and with present conditions it should receive serious consideration.

Modern conveniences have placed an army of fishermen upon our streams, lakes and ponds, and it is natural to assume that they go out for the purpose of returning with a catch of fish. Many of them do. Many of this army of fishermen go out for the wholesome recreation they derive from the trip and would rather take home a few fish than a limit or big catch. As this type of fisherman increases whether he be bait or fly fisherman, so will the fish increase in the streams. But the establishment of more fly fishermen can materially cut down the number of live bait annually taken from our streams.

While the trout and bass have received most of the attention the fly fisherman can have considerable success with many other species of fish with the fly rod and lures.



GAME FISH FORAGE—GOLDEN SHINERS

The surface lures used for bass are very inviting to the blue gill sunfish which is in a class by itself when it comes to fighting qualities. The yellow perch and common sunfish may be successfully taken with the combination fly and spinner which is so effective for bass. The wily pickerel darts from his hiding place to make a vicious strike. The rock bass will rise for either the fly and spinner or the surface lure. The wall-eyed pike will also take the fly and spinner combination and one of these big fellows on a light fly rod will try any fisherman's skill.

It is a well established fact that the principal food supply of most of our so-called game fish are minnows. This is a factor which must be seriously considered concerning future fishing. Before the modern conveniences of travel there were many minnows in the small streams which eventually reached the larger streams where they were utilized by the fish for food as nature intended. The drought has had its serious effect on many of these small streams and the minnow life is practically extinct in many of them. The bait fisherman of today is doing his share to help deplete the minnow life in these small streams as well as the larger ones. No doubt he is innocent and unaware of just what he is doing and when he realizes the damage being done immediately turns to artificial lures.

It has become necessary for the Board to propagate minnows and release them in many streams for a food supply so far as possible. Fish must have food and if the minnow life is not there they will make in-

roads upon other species of small fish for food.

As an example of what takes place in our waters annually let us consider some of the fish which are taken with live bait, trout, bass, wall-eyed pike, rock bass, pickerel, and yellow perch. Live bait are used for some of these species more than they are for some of the others, nevertheless the annual total mounts very high regardless of what species are fished for. The season runs from April 15 to November 30, or a period of 32 weeks. One fisherman using but fifty live bait per week would use a total of 1600 during the season. With 150,000, less than half of our licensed fishermen, using the same amount of live bait a season would total 240,000,000. If this amount of minnows could be released in the streams of the 67 counties each county would receive a total of 3,582,098. Last year the Board released approximately 1,500,000 minnows to offset what the fishermen had taken out of the streams.

There are many fishermen who use more than fifty live bait per week and I personally know of some fishermen who use from 150 to 200 live bait per week during the entire season.

As a comparison to the cost of the flies and live bait I have always contended that the flies were cheaper in the end. For the fisherman who uses 1600 live bait per season which cost from three to five cents each the cost would be from \$48.00 to \$80.00 which would equip any fisherman with the finest kind of a fly rod and the entire equipment which goes with it.

Spring Creek Opening

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1. ANGLERS REGISTERING. 2. IMPROVED LADIES' FISHING SECTION. 3. "UNCLE DAN" SCHNABEL, BOARD MEMBER, TELLS O. M. DEIBLER, COMMISSIONER OF FISHERIES, ABOUT A BIG FELLOW THAT GOT AWAY. 4. CARS LINED UP AT GATE PRIOR TO THE OPENING. 5. HELEN STEWART EXHIBITS HER RAINBOW TROUT. 6. TALKING IT OVER. IN THE GROUP, LEFT TO RIGHT, HON. S. C. CASTNER, GAME COMMISSIONER. O. M. DEIBLER, JOHN C. MOCK, OUTDOOR EDITOR, PITTSBURGH PRESS. H. R. STACKHOUSE, FISH COMMISSION SECRETARY, C. R. BULLER, DEPUTY FISH COMMISSIONER, HON. KEN. REID, BOARD MEMBER, HARRY DEPP, CRAFTON, SLIM KRAUSE, CARNEGIE, JIM BANNING, WARDEN, "UNCLE DAN" SCHNABEL AND PETER KRASS, CARNEGIE. 7. CLOSE-UP OF ANGLERS REGISTERING.

470 Anglers at Spring Creek Project Opening

Milady vied with the masculine contingent of anglers at the Spring Creek stream improvement and trout raising project on May 18, opening day this year. Everything taken into consideration, the event was one of the most successful in Pennsylvania fishing annals. Of 470 registered anglers, 52 were lady Waltonians. That they scored heavily is evidenced by the fact that 87 fine brook, brown and rainbow trout were taken from the improved ladies' fishing section. The largest trout, a 16-inch rainbow weighing 1½ pounds, was taken by Helen Stewart, of Harrisburg.

The following figures in connection with the opening of the fishermen's "paradise" should be of interest. A grand total of 348 trout were killed, while the total number of fish caught, including those returned to the water was 1121. Brook trout killed numbered 90, brown trout 204 and rainbow trout 54. The largest fish was a 16½ inch brownie weighing one pound eight ounces.

The open season will be from May 18 to June 15 and from July 1 to July 31. Fishing will be permitted from 8 A. M. to 8 P. M. standard time. From June 15 to July 1 the project will be closed for restocking. A siren will sound at the opening and closing hours.

Regularly licensed fishermen will be permitted to catch 15 fish per day but will be allowed to kill or keep only two in one day.

Only artificial lures with barbless hooks will be permitted. Fly fishing will be permitted in the entire stream while spinner fishing will be allowed below the lower dam.

All fish under ten inches must be carefully returned to the water. No wading will be permitted in the stream.

In the ladies' section all fish under seven inches must be put back.

All anglers will be limited to five fishing trips to the project during the season.

"Trout History" Repeats

Along comes George Zimmerman, secretary of the Lehigh County Fish and Game Protective Association, with a report of one of the most unusual episodes that has occurred on the famous Little Lehigh Creek near Allentown, in many moons. Writes George:

"Warren Yeakel of Allentown is convinced more than ever that history repeats itself—a theory that had substantiation in his fishing experiences. Last year on the first day of the trout season Yeakel landed a 19½ inch rainbow trout in the Little Lehigh Creek. He entered it in the contest conducted by the Lehigh County Fish and Game Protective Association and won a fine trout rod at the annual smoker of this organization in March. When this year's trout season opened Yeakel decided to give his new rod a try-out and in the course of his morning's fishing along his old haunts he came to the pool where he caught the big rainbow last year. After a few casts he had a vicious strike and in the course of a few minutes, he landed another big rainbow trout, this one also exactly 19½ inches long. Yeakel figures that to catch a 19½ inch trout one year and to catch another one of precisely the same size with a rod that he won for catching the first big one and in exactly the same pool is a feat worth talking about."

Can I Tie 'Em?



That was the question which almost every one raised when invited to join the fly-tying class sponsored by the fish committee of the State College Conservation Association. "Of course you can," was the quick response; "if Waltonian—, with his big clumsy fingers, can tie 'em, you can too."

At any rate, twenty ardent anglers were willing to take a chance. Each member bought a set of equipment including vise, tweezers, thread, silk floss, feathers, tinsel, wax, varnish, etc., and 100 hooks. These sets cost only \$4.05 each, which was a reduction of 30 per cent on catalogue prices.

And then the fun began! George Harvey,

the young man in the front row of the accompanying photograph, is the "professor." (Note that, with his sleeves rolled up, he is ready for any disciplinary problem that may develop.) George, who is a Senior in college, is a clever amateur tier and has learned by experience the most valuable types of artificial lures. On his right is Wm. G. Murtorff, Treasurer of the College, who remarked, after he had tied his first fly, "I didn't think I could do it." Mr. J. A. Fries, Assistant Director of the Institute of Animal Nutrition, who has passed his three score years and ten, is shown in the front row. He is one of the most skilful of this

handicraft group. Dr. S. W. Fletcher, Director of Agricultural Research, several other college teachers, college students, and business men of the community are enrolled in the class.

At the first meeting of the group, Mr. Harvey demonstrated each step with a ten-inch hook, coarse twine, and large feathers. The blackboard was used freely to illustrate points which were difficult to explain.

The class met once a week for four or five weeks; by that time the members were able to tie nymphs, hackles, bivisibles, fan-wings, and various types of wet flies.

Increased enthusiasm developed with each meeting. Some of the members tied beautiful flies during the second lesson and all of them planned to exhibit their specimens at the county fishermen's dinner held on April 4. It is believed that this project will greatly stimulate the use of feathered lures and also provide a most enjoyable handicraft. Furthermore, there is a greater thrill when you catch a fish with a fly which you have tied yourself.

Taken on Fly

That the big brown trout in Yellow Creek, Bedford County, have a liking for artificial flies, even in time of high water, was demonstrated on opening day of the season by George Cochran of Six Mile Run, according to Special Warden Harry Moore, of Hopewell.

Four trout comprised Cochran's catch, Moore reports. In size they were 12, 16, 17 and 20 inches. Brownies of the first water, we'll say, and what a fight they must have put up before yielding to the slender fly rod.



ACTION PHOTOS OF A STRIKING PIKE

POSSESSION LIMIT FOR TROUT IS SET

Under the provisions of Act No. 60, the catch of trout in any one day was reduced from 20 to 15. Many inquiries have been received as to whether or not any person or persons fishing for trout could have more than the day's limit in their possession, providing they were on the stream for several days.

In order to clarify the question, the matter was taken up with the Attorney General's Office, and we were advised that under former opinion issued in March, 1926, the Board had the authority to provide a possession limit.

At the meeting held on May 17th, 1935, it was unanimously agreed by the Board that no person shall have in possession at any time more than fifteen trout of the combined species. This means if a fisherman is on a two or three day trip, upon his return, he cannot bring with him more than the daily limit, which is fifteen. Any person having more than this number in their possession would be subject to a fine of ten dollars (\$10.00) for each fish.

LEHIGH SPORTSMEN PLAN BIG PICNIC

The Lehigh County Fish and Game Protective Association has begun preparations for its annual picnic, scheduled to take place at Dorney Park near Allentown, on Saturday, July 27. A program of contests, including fly and plug casting, trap and skeet

shooting, pistol matches for teams and individuals and other popular sports, is being arranged and fishermen, hunters and marksmen from all over the state are invited to take part. It is expected that one of the contests will be for live trout—a feature that was introduced by this organization at its first picnic last year, and which proved very popular. It is expected that teams from the state police, state highway patrol, municipal police from many cities and military organizations will participate in the pistol matches.

The Lehigh County association on April 12 held a monster open meeting for its members, friends and farmers at Dorney Park, the attendance passing the 1500 mark. There was a program of ten sound and an equal number of interesting silent pictures and during the evening a lunch of hot roast bear sandwiches was served. This organization also held a crow shoot on Washington's Birthday, as a result of which hundreds of the black marauders bit the dust. A number of prizes were awarded for the best "scores."

TROUT CREEL LIMIT CUT TO 15

House Bill 1476, passed by the Pennsylvania Legislature and signed by Governor George H. Earle, reduced the number of trout that can be taken legally in a single day to fifteen, effective immediately. The limit that could be taken legally previously, was twenty.

This warning is being spread broadcast

over the state by the Fish Commission through all possible resources, in connection with orders to fish wardens to put the new creel limit regulation into effect at once.

The changed limit, coming in the middle of the season, is cause for emergency action and the Fish Commission is leaving nothing undone in its efforts to warn the fishermen of the change in the law so that they might not innocently violate the daily creel limit. Of course, the cooperation of all sportsmen and fishermen is sought in putting the new regulation into effect.

STREAMS IMPROVED

Warden Sam Henderson of Greensburg reports extensive stream improvement work accomplished by CCC camps in Somerset County trout waters. Last summer dams and current deflectors were placed on two miles of Koozer Run. Koozer Dam, now nearing completion, will cover between five and six acres of ground. Other streams improved in Somerset County were Jones Mill Run, Blue Hole Run and Tub Mill Run.

BIG BASS

Poor fishing on the North Branch of the Susquehanna last season? Not if you consult George McCabe who lives at Wysox on that great stream. Last year, according to Warden Myron Shoemaker, McCabe caught 34 smallmouth bass from the pool in front of his home and every one of them weighed better than two pounds.

Beaver-Trout Investigation in Michigan

By J. C. SALYER, Institute for Fisheries Research, University of Michigan

(Courtesy - "American Game")

(Part 1)

Origin of the Beaver-Trout Problem

THE great increase of the Michigan beaver through the years of 1930-1934 returned the problem of beaver occupancy of Michigan trout waters acutely to the angling public's mind. This interval in the life history of the beaver represents a swing toward the high population end of the seven-year cycle which beaver population density strikingly manifests. During this period this most interesting American rodent managed to extend its range in Michigan to some part of the water-shed of every Michigan trout stream of any consequence. And this happened in spite of severe environmental handicaps such as the extensive poaching to which beaver was subjected in the interim.

During the previous high period of the preceding cycle, around 1925-26, this animal had regained much of its old territory only to be sharply reduced by organized poaching in the years immediately following.

Special funds for the work were provided by the Department. The writer was selected to carry out the assignment, and devoted the period from September 1, 1933 to June 30, 1934 to intensive field work on this problem.

Numerous trips were made through the area mutually inhabited by beaver and trout. As this was essentially a field study, more than three-fourths of the investigator's time was spent in the field. Contacts were made with previous investigators of beaver problems, with scores of local conservation officers, interested fishermen, trappers and other residents. Large numbers of affected waters were examined and studied physically, chemically and biologically to determine the effect of the beaver on trout habitat. Experiments were conducted to determine the effects of beaver activity on trout migrations and especially on the success of the natural spawning of trout. Dams were blown to determine the recovery of

clusions as were achieved in the backbone of the research, namely beaver-trout relationships, speaking in an ecological sense. It would be unfortunate for the cause of wildlife research in general if the investigation were terminated without fully exploring the new avenues it has opened in many phases of Michigan wildlife existence. As will be demonstrated in the more complete report forthcoming around January of the new year, the beaver is a factor in the life of every Michigan mammal of economic or recreational importance.

Furthermore, the local details of beaver-trout relations need further attention if a management program is to be adopted. Some degree of continued investigation and checking will be called for in effectively carrying out such a program.

Public Opinion Divided in the Beaver Question

When the investigator began work on the problem he found the anglers massed into two definitely divided camps. One faction stoutly maintained their faith in the beaver's ability to provide more and better trout fishing. The other division saw their favored streams ravished by unchecked beaver encroachment. Both were right within certain limitations as to time and place. Both agreed that if any damage to trout waters was outstanding it would be that of killing shade and warming up the streams. Succeeding research, however, has shown that this is one of the minor influences on trout stream welfare.

Method of Attacking the Problem

The problem was purely an ecological one. It was a fascinating study from the start. The two main lines of attack were by the observational and the experimental methods. Both gave splendid converging evidence.

In the experimental work, hundreds of trout were tagged to check their native ability to surmount obstructions to their spawning runs. Dams of known ages were blasted to determine recovery rates from beaver occupancy of a stream. Temperature studies were made. Food counts were undertaken. Predator sequence was followed up. Beaver were transplanted to observe effects on fishing. These are only a few instances of the experimental approach.

On the observational basis, an attempt was made to determine the ancient effects of beaver on trout and trout streams. Early beaver workings were studied and pioneer data were collected and analyzed. Several hundred early settlers, trappers, and lumbermen were interviewed, concerning early beaver numbers and locations. Creel census data was secured from an equal number of beaver dam fishermen. Studies were made of timber damage, tree succession, the fate of streams long used by beaver, effects on trout lakes, trout wintering, and numerous other phases of the problem. An exhaustive study of physical-chemical changes in the water of beaver dams as contrasted with natural stream conditions gave start-



BEAVER

(Game Commission Photo.)

Yet the dams remained in sufficient numbers and are now of such age that the final effects of the occupation of a trout stream by beaver are plainly discernible to any who would read the story. Seven years, then, after their first come-back of any consequence in the nineteen hundreds, the results of dense beaver activity on our best trout streams had become a source of some apprehension to many anglers.

The Beaver-Trout Investigation

In view of the increasing public interest in the problem, the state conservation officials decided to have a full-time investigation made of the problem. The Institute for Fisheries Research was asked to select the investigator and to assume the major responsibility for the investigation, acting in cooperation with the Game and Fish divisions of the Department of Conservation.

trout waters, as experiments in beaver-trout management. In short every effort was made to determine just what effects the beaver have on the trout population, for better or for worse, under the different conditions prevailing in different sections of the date.

During the following summer (1934), the Stream Unit of the Institute carried on with the Investigation, checking summer conditions under the writer's directions.

The investigation was presumed to require some three years to complete, but facts essential for setting up a management policy and program were forthcoming at the end of the first year of research. Although the most critical, main aspects of the problem have been determined, it must be emphasized that many interesting and important corollaries of the research have been opened up. These new lines of investigation should be followed through to equally definite con-



BEAVER IN LIVE TRAP

(Game Commission Photo.)

ling returns. Practically every trout stream of importance in the state was visited and dams of all ages, types, and locations were studied. The result was a great mass of harmonious data which verified and supplemented the experimental data. Incidentally an appreciable portion of this material comprised new and pertinent life history information on America's most interesting mammal, the beaver.

Summary of Research Findings

A. Beaver Dams Produce Bad Physical-Chemical Effects In Trout Waters

1. All beaver ponds regardless of size or age show a definite biochemical demand on the dissolved oxygen of the water. That is, the organic matter present removes a portion of the oxygen. The effect is sometimes so critical as to kill every living organism in the pond, or again so slight as to be barely detectable.

2. The pH reading of a beaver dam lowers with age, indicating increased acidity. This condition becomes worse four years after the dam is made. This is occasioned by the accumulation of humic acids from flooded submerged timber. In several instances readings so low on the acid side of the scale were found that it is doubtful if trout could tolerate the concentration.

3. As a result of such bad physical-chemical conditions, the trout in a number of streams were rendered unpalatable when eaten.

4. In summer a beaver dam of a half acre or more often causes a rise in the tem-

perature of the stream from one to several degrees. This is not important in the general picture, however, as the stream generally recovers its original temperatures before it has run a quarter mile even after going through a series of dams. The temperature question is decidedly secondary in the ultimate effects of beaver on trout waters.

More serious is the cooling down of spring water in a beaver dam in early winter due to the increased exposure of the water to the air. During the spawning season of the brook and brown trout the water is often cooled down to below the spawning threshold (the temperature at which spawning takes place). Many miles of potential spawning waters have been rendered unproductive in the last five years from this cause alone.

5. Beaver dams are the source of immense quantities of a fine impalpable silt. In high water periods or when a dam is injudiciously blown out by man, this silt is deposited down stream from one-quarter to one-half mile, frequently laying a suffocating deposit over food organisms and over trout eggs previously spawned.

6. For a number of reasons, the physical-chemical conditions in a beaver pond are better when occupied by beaver than when abandoned by them. Removing the beaver without blowing out the dam not only fails to remedy the bad physical-chemical conditions, but may even increase the hazard.

(To Be Continued)

INTERESTING DATA ON WATERSNAKES

The following communication from Warden Harry Cole of Norristown concerning watersnakes is particularly timely now that sportsmen in Pennsylvania are centering their efforts in thinning down the number of these fish-destroying reptiles on many of our streams and lakes. He writes:

"Having developed an antipathy for the watersnakes after witnessing at first-hand many of the depredations committed by them, I as a sportsman, concluded that if the streams could be depleted of watersnakes, the number of fish in the streams would be materially increased.

"Having several weeks of vacation before and several weeks after the summer course at college during 1925, I decided to declare an open war on the 'pesky critters.'

"Incidentally, the shooting of watersnakes, besides ridding the streams of the menace to fish, provides real sport and helps to develop a keen eye and a steady nerve, when one uses a .22 caliber rifle with a long rifle cartridge.

"During that summer I shot 104 watersnakes. One was a very large specimen which contained 44 eight-inch unborn baby snakes. On two occasions I shot a snake with a fish in its mouth.

"Since then I have shot some each summer, having shot in all over 500 of them.

"During the last five years, my activities along this line aroused the interest of others, so that now, watersnakes in the territory that I covered (Perkiomen Creek, Rahns and vicinity) are the exception rather than the common thing.

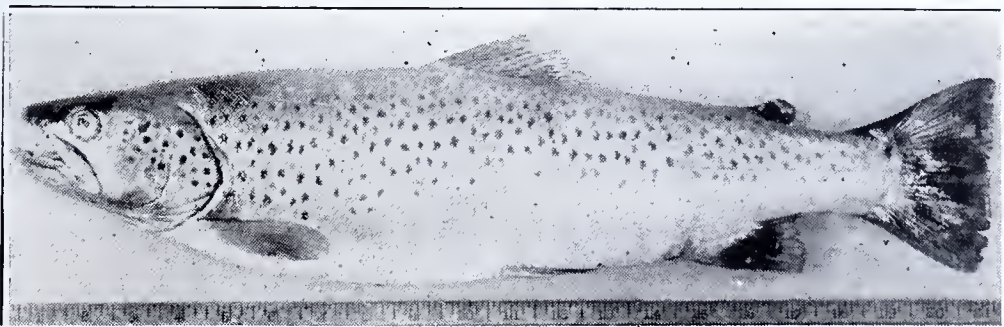
"During the summer of 1933 in the course of several days, I shot two specimens, each of which contained 37 unborn baby snakes. The one had in its stomach an 8-inch small-mouth bass and the other had in its stomach a frog that I judged would have weighed about 18 ounces. These facts corroborate the extreme destructiveness of watersnakes.

"If each of the 250,000 licensed fishermen in Pennsylvania would pledge himself to kill only 2 watersnakes during the present season, it would mean the destruction of 500,000 snakes. Assuming that each snake would kill five fish, which I think is a nominal estimate, it would mean the saving of 2,500,000 fish during the year for the fishermen of Pennsylvania."

LUCKY FROG

Deep and mournful croaking of a bullfrog attracted the attention of H. M. Kunkle, Altoona angler, while he was fishing on the Raystown Branch of the Juniata River. It was midday, and the big green fellow apparently was making a great deal of fuss for that time of day.

Approaching the scene of the frog's lamentations, Kunkle saw a large watersnake, its fangs embedded in the foot of the "bully rum." Kunkle, who had a rifle with him, shot the snake. The frog, suddenly released, jumped high into the air in one of the most comical leaps Kunkle says he ever observed. Another record-breaking bullfrog jump, this time a broad-jump, carried it to the safety of the stream.



A THREE POUND BROWN TROUT FROM YELLOW BREECHES CREEK, CUMBERLAND COUNTY

Invalid War Veteran Catches Many Carp



tions to Stanley's favorite fishing hole, to experience the thrill of landing one of those river monsters. This created crowded conditions in and about this fishing pool, which did not hinder his success in catching carp, but has proved his ability to be far superior to that of any fisherman for miles up and down the river. His ability as a carp fisherman is recognized by practically all fishermen in Northumberland, Columbia and Schuylkill counties, particularly those who have witnessed some of his catches. Stanley's cheerful disposition, despite his infirmity, makes him very popular among sportsmen, many of whom make a special trip to the river to see him fish. Many anglers in this section after facing the facts of carp fishing are being converted into carp fishing enthusiasts.

He uses a patent dough bait exclusively on all his fishing trips, together with light tackle composed of four foot bamboo casting rods with 100 yard anti-back-lash casting reels, filled to their capacity of a hundred yards of 20 pound test, silk casting line, using practically entire hundred yards in landing a fair sized carp, especially a leatherback, which Stanley claims will give any angler something to think about.

In 1933 he and his friends caught many carp without keeping record of their catch, but upon the suggestion of a fellow fisherman, that he keep account of all his catches, he decided to do so in 1934 compiling a complete record for the year. Stanley acted upon the suggestion of his fellow sportsman. You act upon the request of the Board of Fish Commissioners and fill out the questions on the post card questionnaire furnished you with your fishing license. Your cooperation with the board will mean better fishing for all.

REASON FOR DISGUST

When you've pictured in the mind's eye that wild, untrammled beauty of a favorite fishing stream during off-fishing months of winter and then find that since you were there last time, it has been converted into a garbage dump—well—words can't be strong enough to express the disgust in the heart of any fisherman. And that was the experience recently of Charles P. Jones of Athens and a companion on a north tier trout stream. The ANGLER is with you 100 per cent, Brother Jones, in advocating a clean-up campaign of messes like the one you describe in your letter, which follows:

"On the evening of April 26, I started out for my first fishing trip of this season. After stopping at Wellsboro, Tioga County, for my fishing partner, we decided to spend the night at our favorite trout stream, so as to be on hand for fishing early the next morning.

"So accordingly we journeyed to Galeton, Potter County, and on up the west branch of Pine Creek to the best stream in Pennsylvania, in our opinion, Lyman Run.

"Driving up Lyman Run from West Branch, we came to a CCC camp and about three or four tenths of a mile above this camp a small road, to the left, leads to our old camping ground.

"We could hardly wait to get there. It sure would seem good to be on the old stream

Stanley T. Patricoski, an invalid war veteran of Mt. Carmel, who fishes from a wheel chair, points with pride to the catch of carp he and his friends made during 1934 in the waters of the Susquehanna, near Bloomsburg.

This catch consisted of 119 fish, having a total weight of 1089¾ pounds, composed of one silver carp, 8 leatherbacks and 110 German carp. The largest of this group was a German carp measuring 37½ inches, and weighing 27½ pounds, caught on October 23, 1934. Among the fish caught were 19 fish from 14 to 20 inches in length; 20 fish from 20½ to 25 inches in length; 62 fish from 25½ to 30 inches in length; and 18 fish were from 30½ to 37½ inches in length. The average weight was over nine pounds per fish. Weight and measurements of each and every fish were taken by the Atlas Hardware Company of Mt. Carmel. The first fish was caught on April 11, 1934, and

the last or largest fish was caught on October 23, 1934. A complete record showing the dates, length and weight of this catch is in Stanley's possession.

Due to paralysis of both legs as a result of the World War, Stanley is unable to move his lower limbs and must, therefore, be carried from his car by his brothers or friends in a specially constructed wheel chair to his favorite fishing hole in the Susquehanna River, along the highway between Bloomsburg and Catawissa. The photograph on this page shows Stanley (with sun visor and seated) and his friends displaying part of a day's catch.

Rumors regarding Stanley's catch of carp have spread to such an extent throughout the entire region as to increase the amount of fish caught a hundred-fold, magnifying the size to six feet in length and sixty pounds in weight. These stories have brought hundreds of fishermen from all sec-

again. As we opened the door of our car we noticed that the smell in the air is not what we expected.

"We took our flashlights and started looking around. Imagine finding a nice garbage dump on your favorite trout stream. Piles of rotting meat and beans, parts of model T Fords, ashes, tin cans and other rubbish piled within 15 to 20 feet of the creek where the first high water would carry it into the stream.

"It just about spoiled our trip and I decided that when I reached home I would write you and see if such things as this could be stopped.

"I read the *ANGLER* from cover to cover. It sure is a fine magazine. I specially enjoyed 'Reflections of An Amateur Fly Tyer' in last issue. It brought back memories.

"Hoping that next time I can find something better to write about, I am

"Yours for better hunting and fishing,
"CHAS. P. JONES."

APRIL STOCKING PROGRAM HEAVY

The spring stocking program of the Fish Commission was nearing a peak during April. Included in the number of fish released from the hatcheries were 158,061, brook, brown, and rainbow trout, legal size and over, 140,075 fingerling brook and brown trout, 752,500 pike-perch fry, 23,345,000 yellow perch fry, 7000 fingerling bluegill sunfish and 34,150 minnows, 2 to 3 inches in length, to serve as additional forage for game fish.

Following were the waters stocked in the various counties:

Adams—Yellow perch, Bermudian Creek, Little Conewago Creek; brook trout, Cone-wago Creek.

Bedford—Brown trout, Imlertown Run, Yellow Creek.

Berks—Brook trout, Moselem Creek, West Branch Pine Creek.

Blair—Brown trout, Piney Creek, Clover Creek.

Bucks—Pike perch, Delaware River, Neshaminy Creek; brown trout, Pine Creek; yellow perch, Neshaminy Creek, Maple Beech Pond, Silver Lake, Delaware River.

Butler—Brown trout, Thorn Creek.

Cambria—Brook trout, Spring Run; brown trout, Chest Creek.

Cameron—Brown trout, Driftwood Branch.

Carbon—Brown trout, Wild Creek, Pohopoco Creek.

Centre—Rainbow trout, Rockview Penitentiary Reservoir; brook trout, Pleasant Gap Run; brown trout, Penns Creek, Spring Creek, Poe Creek.

Chester—Yellow perch, Buck Run, Brandywine Creek, East Branch Brandywine Creek.

Clarion—Rainbow trout, Toms Run; pike perch, Allegheny River, Clarion River; brook trout, Deer Creek; brown trout, Piney Creek.

Clearfield—Pike perch, Little Clearfield Creek, Chestnut Creek; brown trout, Mosquito Creek, Lick Run, Little Clearfield Creek.

Clinton—Brook trout, Big Fishing Creek; brown trout, Big Fishing Creek.

Columbia—Brown trout, Fishing Creek.

Crawford—Pike perch, Pymatuning Reservoir Sanctuary; brook trout, Middle Branch Sugar Creek, Gravel Run, North Branch Woodcock Creek, Mackey Run, West Branch Cressewago Creek, Federal Run.

Cumberland—Pike perch, Susquehanna River; brook trout, Big Sp. Creek; brown trout, Yellow Breeches Creek, Mountain Creek.

Dauphin—Brook trout, Clarks Creek; brown trout, West Branch Rattling Creek; yellow perch, Swatara Creek, Aberdeen Dam, Conewago Creek, Manada Creek.

Delaware—Yellow perch, Ridley Park Dam, Darby Creek, Chester Creek, Ridley Creek; brown trout, Ridley Creek.

Elk—Brook trout, Straight Creek; brown trout, Big Mill Creek, West Clarion Creek.

Erie—Minnows, Lake LeBoeuf; brook trout, L. Conneauttee Creek, Shaws Run.

Fayette—Brown trout, Little Sandy Creek, Big Sandy Creek, Big Meadow Run.

Forest—Rainbow trout, Spring Creek; brook trout, The Branch or North Salmon Creek, Beaver Creek, Otter Creek, Hunter Creek, Bear Creek, Salmon Creek, Watson Branch, Blue Jay Creek, West Branch Blue Jay Creek, Little Salmon Creek, Hunter Run, Fork Run, Bobbs Creek, Johns Run, Tubbs Run, Prather Run, Maple Creek, Little Coon Creek, East Hickory Creek, Coon Creek.

Franklin—Brook trout, Falling Springs, Dennis Creek; brown trout, West Branch Conococheague Creek.

Huntingdon—Brown trout, Standing Stone Creek, Spruce Creek, Greenwood Furnace Dam on East Branch Stony Creek, East Branch Standing Stone Creek, Frankstown Branch Juniata River.

Indiana—Brook trout, Carney Run; brown trout, Yellow Creek.

Jefferson—Rainbow trout, Clear Creek, Cathers Run; brown trout, North Fork Red Bank Creek, Manner Run.

Juniata—Pike perch, Juniata River, Pomeroy's Dam on Tuscarora Creek, Tuscarora

Creek; brown trout, Lost Creek; yellow perch, Pomeroy's Dam on Tuscarora Creek, Juniata River, Licking Creek.

Lackawanna—Brook trout, Gardner Creek, West Branch Wallenpaupack Creek; brown trout, Gardner Creek.

Lancaster—Pike perch, Susquehanna River; brook trout, Climbers Run, Hammer Creek, Little Conestoga Creek, Long Run, Swarr Run, Wisslers Run, Charles Run; brown trout, Shearers Run, Fishing Creek; yellow perch, Susquehanna River, Wengers Mill Dam on Conewago Creek, Conowingo Creek, Conestoga Creek.

Lawrence—Pike perch, Shenango River; rainbow trout, Little Neshannock Creek; brook trout, Big Run, Hottenbaugh Creek, Jameson Creek.

Lebanon—Pike perch, Little Swatara Creek; yellow perch, White Quarry Hole, Water Works Dam, Little Swatara Creek, Conewago Creek, Stracks Dam, Lights Dam, Stavers Dam.

Lehigh—Brown trout, Little Lehigh River; yellow perch, Indian Creek Park Dam, Smoyers Milling Company Dam on Little Lehigh River, Foglesville Dam on Hoosen Creek, Hosensock Creek.

Luzerne—Brown trout, Huntingdon Creek, Bear Creek, Hunlock Creek, Wapwallopen Creek; brook trout, Wrights Creek, Pine Creek, Stony Run, Lynesville Creek, Shades Creek.

McKean—Brown trout, Marvin Creek, West Branch Tuncunguent Creek, Potato Creek, East Branch Tionesta Creek.

Lycoming—Brown trout, Lycoming Creek, Slate Run, Loyalsock Creek.

Mercer—Rainbow trout, Little Neshannock Creek; West Branch Little Neshannock Creek; pike-perch, Neshannock Creek; brook trout, Deer Creek, Mill Run, Little Sandy Creek, Lackawannack Creek, North Branch Wolf Creek, Mill Creek, Johnson's Run, Probst Run, Big Run.



IN ACTION AT THE SPRING CREEK PROJECT



E. M. PRIME, PHILADELPHIA.
CAUGHT THIS 6½ POUND
LARGE MOUTH BASS IN STILL-
WATER LAKE, MONROE COUNTY,
LAST SEASON.

Mifflin—Brown trout, Penns Creek, Kishacoquillas Creek.

Monroe—Minnows, Mud Run Dam on Mud Run; brown trout, Brodheads Creek, Pocomo Creek, Paradise Creek; brook trout, Leavitts Branch.

Montgomery—Yellow perch, Skippack Creek, North East Branch Perkiomen Creek, Gulf Mill Creek, Towamencin Creek; brown trout, Deep Creek.

Northampton—Pike perch, Delaware River; yellow perch, Island Park, Delaware River; brown trout, Hokendauqua Creek.

Perry—Minnows, Shermans Creek; pike perch, Susquehanna River, Buffalo Creek, Juniata River; yellow perch, Shermans Creek, Juniata River, Susquehanna River, Buffalo Creek; brook trout, Laurel Run, Liberty Valley Run.

Philadelphia—Brown trout, Wissahickon Creek.

Pike—Brown trout, Raymondskill Creek, Wallenpaupack Creek; brook trout, Middle Bushkill Creek, Little Bushkill Creek, Dingmans Creek, Millrift Creek, Kellam Creek, Indian Ladder Creek.

Potter—Brook trout, Sartwell Creek, Cross Fork Creek, Dingmans Run, West Branch Pine Creek.

Schuylkill—Yellow perch, Patterson Dam No. 1, Patterson Dam No. 2, Patterson Dam No. 3, Sweet Arrow Lake, Deer Lake Dam, Long Run, Dock Pond; brook trout, Little Catawissa Creek, Bear Creek, Fishing Creek.

Snyder—Brown trout, Kuhn-Hooven Creek, Mitchell Run, Brickhart Run, Krepp Gap Run.

Somerset—Brown trout, Flaugherty Creek, Laurel Hill Creek.

Sullivan—Brook trout, Hogland Branch, Fast Branch Fishing Creek, West Branch Fishing Creek; brown trout, Little Loyalsock Creek.

Susquehanna—Brown trout, Starrucca

Creek; brook trout, Hardings Creek, Riley Creek.

Tioga—Brown trout, Pine Creek; brook trout, West Branch Mill Creek, Cedar Run.

Union—Brown trout, Penns Creek; brook trout, Half Way Run, Sand Spring Run.

Venango—Brown trout, Little Scrub Grass Creek; brook trout, Hemlock Creek, East Branch Sandy Creek, Little Sandy Creek, Ritchey Run, Mill Creek, West Pit-hole Creek, Cherry Run, Prather Run, Porkey Run.

Warren—Rainbow trout, Farnsworth Creek; brown trout, West Hickory Creek, East Branch Tionesta Creek, Caldwell Creek, Tionesta Creek, West Branch Caldwell Creek; brook trout, Hemlock Creek, Ben George Creek, Tidioute Creek, Rock Hollow Run, Wilson Run, Hosmer Run, McGuire Run, Perry McGee Run, Drums Run, Thompson Run, Matthews Run, Ackley Run, Upper Sheriff Run, Lower Sheriff Run, Farnsworth Creek.

Wayne—Brown trout, Dyberry Creek, Little Equinunk Creek, Equinunk Creek, Butternut Creek, Lackawaxen River, West Branch Lackawaxen River; brook trout, South Branch Calkins Creek, West Branch Lackawaxen River.

Westmoreland—Brown trout, Lynns Run, Tub Mill Run.

Wyoming—Rainbow trout, Bowmans Creek; brook trout, South Branch Mehoopany Creek, West Branch Mehoopany Creek; North Branch Mehoopany Creek.

York—Brook trout, Fishing Creek; yellow perch, Susquehanna River; pike perch Susquehanna River.

JUNIOR IZAAK WALTON CHAPTER ORGANIZED

Much interest has been aroused in Berks County sportsmen circles through the formation of a Junior Izaak Walton League chapter at Reading. At their organization meeting, Edward Marks was elected president of the group. The Junior Waltonians range in age from 13 to 16 years, and have

been actively cooperating with the senior chapter in conservation activities.

In outlining the aims of the organization, Oscar Becker, president of the Berks County chapter of the Izaak Walton League stressed the casting of bait and flies, identifying local species of fish, fire prevention and the proper handling of firearms.

A JANUARY BASS

Pennsylvania bass are generally conceded to go into hibernation or at least an inactive state, during winter months. For this reason, the taking of a sixteen-inch smallmouth bass in the Conodoguinet Creek in January two years ago is worthy of particular note.

John Spahr, of Carlisle, while sucker fishing near the Cumberland County seat, made the unusual catch, then released the fish. He reported the incident to Warden George James. The bass was caught at the juncture of Big Springs, a famous trout stream, and the Conodoguinet, equally famous as bass water. It is thought probable that the fish remained active owing to the higher winter temperature of water from Big Springs which flows into the Conodoguinet at that point.

FISHING

It is said that you have to be a fisherman yourself to appreciate fully the wholesome recreation and healthful entertainment that is to be derived from this sport.

This may be true, but those who do not fish can grasp a little of the enthusiasm that an angler experiences by merely listening to his accounts of his trips. Fishermen make more converts to their favorite sport than any number of books on angling.

A Monongahela man who had never fished in his life suddenly decided to go angling the other day, after hearing one of his friends enthusiastically relate his experiences in the mountains on the opening day of the trout season recently.



LAKE GORDON, BEDFORD COUNTY, A GREAT LARGEMOUTH BASS PRODUCER

For weeks, and months, he said, his friend had seemed a victim of melancholia. He had lived for so long in a depression era that he apparently had lost heart. Even with business showing improvement, he couldn't regain heart, fearing that the improvement had not come to stay. His forebodings were contagious. Those who heard him were also inclined to become doubters despite the optimism that they had begun to feel about business in general.

Two days along a mountain stream angling for speckled beauties and a fine "catch" apparently made a new man of the pessimist. He came home refreshed in body and mind.

When he conversed with friends, he no longer talked of business worries and fear. His conversation was built around his fishing trip, and his good luck.

If a trout fishing trip can do this for him, his friend who had never fished before reasoned, it must be worthwhile. So he, too, went fishing.

Others probably have had similar experiences.

Trout fishing is gaining more and more devotees every year. The State helps materially to promote this wholesome recreation to a greater extent, perhaps, than any other state. Streams are stocked annually with legal size trout from the state hatcheries and the Board of Fish Commissioners even publishes an attractive magazine, the PENNSYLVANIA ANGLER, to develop interest in the sport.

Fishermen, themselves, win the most converts to their favorite sport, as we have observed before. And it is a fine thing that they do. For fishing, particularly trout fishing in the mountain streams, is excellent and healthful entertainment.

—Monongahela Republican.

CLINTON STREAMS IMPROVED BY CCC

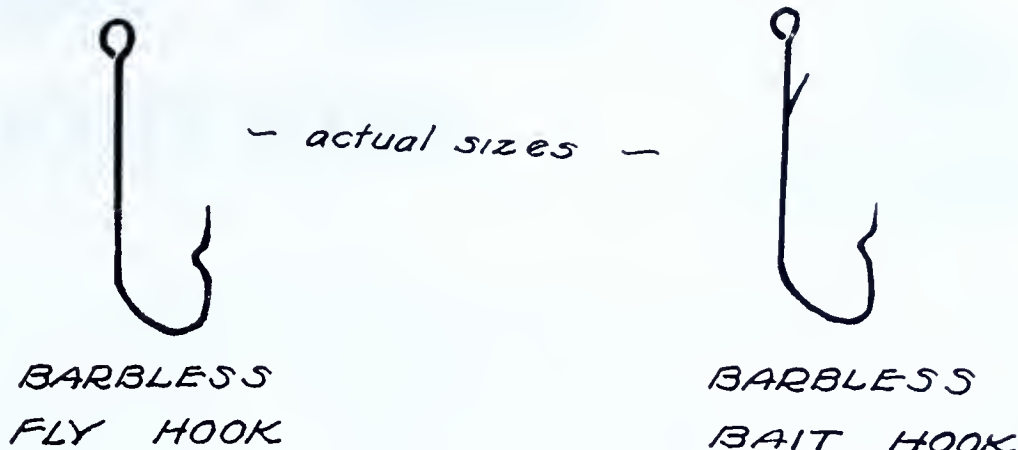
Log and stone dams, retards, covers and deflectors were built in Clinton county trout waters last year by members of the Civilian Conservation Corps camps stationed in that area. The stream improvement program was carried through under the direction of Charles Hogland, District Forester stationed at Renovo, according to Warden George Cross.

Camp No. 75 placed 72 log and stone dams on Hyner Run, 25 on the Left Branch of Hyner Run and 30 on the Right Branch of Hyner Run. In Fish Dam Run, Camp 76 erected 88 dams and placed 120 in Burns Run. The Left Branch of Young Woman's Creek was improved with 52 dams and the Right Branch with 29 dams by Camp 77. Camp 78 placed 120 dams on Cooks Run, while on Lick Run 156 retards, log covers and current deflectors were placed by Camp 120. Shoemaker's Branch of Bakers Run was improved with 82 rock and log dams by Camp 121. On Two Mile Run, Camp 122 constructed 73 log and rock dams.

FISH PRIZES AWARDED AT BROOKVILLE MEET

At a splendid mid-winter meeting, award of prizes in the annual fishing contest of the Brookville Sportsmen's Association and adoption of a conservation program for 1935 were features.

AN ANGLER-CONSERVATIONIST SPEAKS



One of the finest expressions of sportsmanship that it has been the ANGLER's privilege to receive has been written by Harry P. Shawkey of Warren. We should explain, perhaps, that Shawkey ranks as one of the ace bass fishermen in Pennsylvania. He is an ardent advocate of the barbless hook in fishing. Following is his letter:

"To my mind better fishing and conservation go hand and hand with the methods practiced by the individual sportsman. The true sportsman is interested not alone in increased production and stream improvement, important as these are, but he is thinking also of the saving of the fish already in the streams.

"For some time now I have been fishing with the barbless hook, which I am convinced is the only proper method of fly fishing. It is so very much more humane. This season I have caught over five hundred fish

on a fly with barbless hook, and have retained all but twelve of them. I have injured no fish but what would bite within a week. Undersized fish are returned to the water in such condition that they are saved and increase in size. This fact it seems to me cannot be too strongly emphasized as an important point in the individual fisherman's opportunity to assist in conservation and preservation.

"In my estimation the barbless hook is the most successful hook, and with the fly holds better even than a barbed hook. Flies may be obtained from almost any fly-tying dealer. I believe the future of bass fishing depends upon the use of the barbless hook and sportsmanship.

"I am enclosing drawing showing the actual sizes of the barbless fly hook and the barbless bait hook, which I use. They do catch fish, and they do save fish."

The following prizes were awarded in the fishing contest:

Largest brook trout—Fly rod offered by Brookville Hardware Co., won by Emmett McCullough, Brookville R. D. 6.

Largest brown trout—Fishing kit offered by Glenn Riggs, won by Jacob Darr, Brookville.

Largest sucker—Fish basket offered by Craig Drug Co., won by Vaughn Hoffman, Jr., Brookville.

Largest bass—Pair wading boots offered by Brown's Boot Shop, won by Roy Reitz, Brookville.

Largest fish caught—Reel offered by Fetzner Bros., won by Duffy Bullers, Hazen.

KEPHART DAM TO COVER 253 ACRES

Central Pennsylvania fishermen who found in the old Kephart dam a fine fishing ground for pickerel, yellow perch and catfish, will be interested in plans that have been completed for increasing the size of this body of water on the Little Black Moshannon Creek.

According to Warden David Dahlgren, Harry Dowler, Engineer-in-Charge, has announced that when this dam has been filled to capacity it will cover 253 acres, and will have a shoreline of seven miles. An improved road leads to the dam, which is located in Centre county.

BOARD OF FISH COMMISSIONERS HARRISBURG, PA.

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HERE ^{A_ND} THERE IN ANGLERDOM



Plenty of big brown trout are being caught this season, reports to the ANGLER indicate. Taken on a dry fly was a 19-inch brownie, caught by Dr. Richards Hoffman, Bellefonte, in Bald Eagle Creek. A minnow fished by Lee Vonada of Coburn lured a 23-inch brown trout to its last fight in a mill dam on Pine Creek, Centre County. Fishing in Spring Creek, tributary to the Little Lehigh, Calvin Stevens of Allentown caught a 20-inch brownie, according to Warden Joel Young, Fullerton. The Monocacy yielded a brownie measuring 20 inches to James Hartzell of Bethlehem.

Using a blue quill fly, Elmer Schwab of Weissport made a fine catch of brownies in Wild Creek. They ranged in size from 8 to 12 inches. An almost identical catch from the same stream, the brownies in it measuring from 8 to 12 inches, was made on a blue quill by Charles Boyer of Tamaqua.

Pike County waters are off to a good start for big brown trout this year, according to Warden Frank Brink, Milford. Fishing in Raymondskill Creek recently, Charles Bonoff of Milford caught a brownie 23 inches in length that weighed four pounds. A fair start in the big brownie list for Pike. And now we're wondering whether the great Lackawaxen will yield a trout this year to top Bill Percival's catch of that big fellow weighing 9 pounds, 7 ounces.

Chickens, Beware

Chickens, parading in the meadows near a trout stream, should be bred to know just what is a good worm and what worms are not to be trusted. At any rate, two instances reported indicate that chickens may be developing "game fish qualities."

From Warden Anthony Lech of Shenandoah comes word of the experience of Rock Michalowsky of St. Clair. Rock was enjoying the angling sport on Fishing Creek, when, on the back cast he hooked into a "feathered fish." With plenty ado including indignant squawking, a Plymouth Rock chicken was landed. And from all accounts, the experience of removing the hook from the strange catch was not too pleasant.

Gus Anderson, of Grass Flats, Clearfield County, also had a "chicken catching" experience while fishing on Logan Branch, Centre County. Using a red worm for bait, Anderson "over-cast" the stream, the hook falling on the opposite shore. A stately rooster proceeded to impale itself on the hook and raised rumpns aplenty before it was released.

Special Warden Harry Moore of Hope-well reports great trout fishing on Bedford County streams this year. Three Springs Run yielded a fine creel of brook trout ranging in size from 8 to 12 inches to Frank Snyder, Loysburg, on opening day. Other exceptional catches of brookies on this stream were taken by Bill Snyder, Loysburg, his trout ranging in size from 9 to 12 inches, all brookies, and Harry Snyder. The three men are brothers. Gint Diehl of Wolf-sburg caught three brownies in the Raystown Branch, 12, 14, and 17 inches. Beaver Creek yielded a fine catch of brookies, 9 to 13 inches, to Warren Kagarise of Loysburg.

Mill Creek, Bethel Township, Northkill Creek, Upper Bern Township and Mill Creek, Tilden Township, in Berks County rank as three of the best trout producers in that section this year, according to Warden Bill Wounderly of Reading. Back Creek and Swamp Creek in Caernarvon township also have been good.

Wildwood Lake in the suburbs of Harrisburg may have yielded the record bullhead catfish of the year. Warden Frank Sanda, Steelton, reports the catching by Eli Solar, Harrisburg, of a bullhead measuring 18 inches and weighing 4 pounds, 8 ounces.

Landing a 22½ inch brownie on old fashioned tackle that could not stand too much strain, and minus a landing net, was the accomplishment of Harry Leyman of Chambersburg on the first day of the season, according to Warden Charley Long of East Waterford. The trout, 4½ inches deep, was the chief item for breakfast on Easter morning. It had been kept alive in a goldfish container until Saturday of the week when it was caught.

Great catches of brook trout were made on Tidioute Creek, Warren County, during the first week of the season, according to Warden R. C. Bailey of Youngsville. Listed among those making outstanding catches were Lou Schwab, Mike Merkel, Sam Nicholson, Joe McClusky, Harold Swanson and Leonard Snyder.

Listed among the big brown trout taken this year will be the catch of W. R. DeHaas of Altoona. DeHaas caught a 24-inch brownie in Bald Eagle Creek, Centre County.

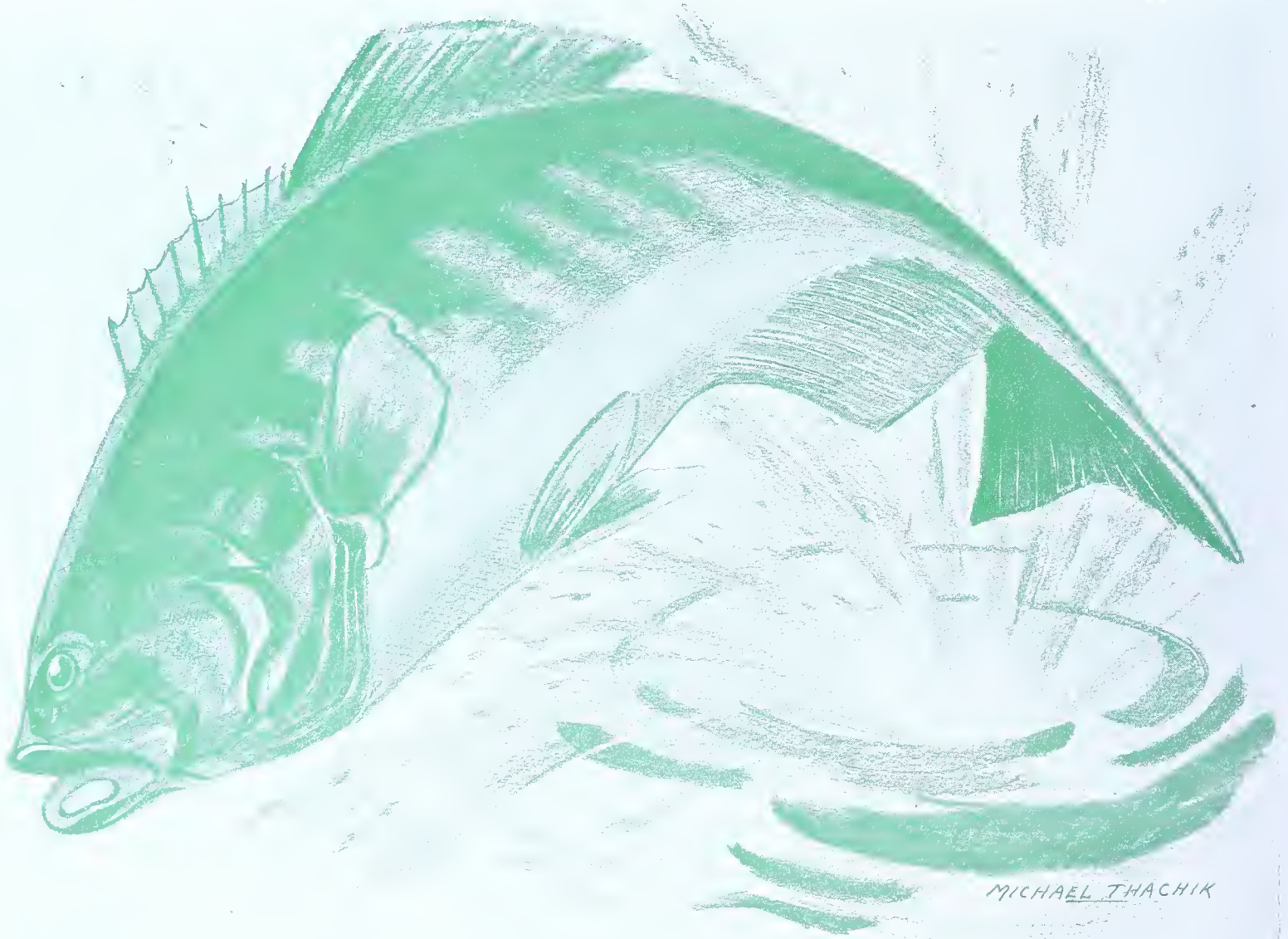
Last season's bass catches are still filtering in. Fishing at Bernard Lake, Chester County, writes W. S. May of Kennett Square, he and Fred, Jr., landed three fine large-mouth bass. The largest weighed five pounds, a fine bass in any water.



MRS. RUSSELL WOMELSDORF, KINGSTON, WITH A CATCH OF PIKE AND BASS FROM LAKE WALLENPAUPACK

JOHN
TURLEY

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Leaping Bass

PENNSYLVANIA ANGLER



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NOTE

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PENNSYLVANIA ANGLER welcomes contributions and photos of catches from its readers. Proper credit will be given to contributors.

All contributions returned if accompanied by first class postage.

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EDITORIAL

Save Undersize Bass

Pennsylvania fishermen recognize in the black bass a fish of superb fighting qualities and a worthy opponent for their angling skill. It typifies the ideal game fish, and in many sections of the state, sportsmen are acclaiming a remarkable comeback in number of the bass schools. Present indications point to a splendid bass season, one of the best in the past decade. The large number of bass now in our streams may be preserved if our anglers use every precaution in taking undersize bass from the hook, and, if necessary, sacrificing the hook to save a small bass that has swallowed the lure.

Ideal spawning conditions during the past five years and heavy stocking of bass by the Fish Commission have been outstanding factors in the increase of the bronze battlers in Pennsylvania waters. Low clear water of fairly high temperature encouraged the male bass guarding their nests to care for the young until they were able to forage for themselves. Bass stocked from our hatcheries varied in size from three to five inches and were sufficiently matured to grow rapidly when released in wild waters.

In practically every bass stream in the state this season are thousands of bass ranging in size from six to nine inches. It is a recognized fact in fish culture, that the abundance of bass is in direct proportion to the supply of live food available. Black bass, largemouth and smallmouth, take heavy toll from species of forage fishes, and when the food supply dwindles do not hesitate to prey upon



their kind. Heavy fishing during the past five years has kept the balance of these game fish sufficiently reduced to insure abundant forage for the bass crop now in our waters. Schools of large bass of both species are to be observed almost any day in the clear water of our bass streams and lakes.

Our anglers, when they invaded the bass waters on July 1, had in their keeping the future of this splendid sport of bass fishing. Remember, that an eight inch bass, returned unharmed to the water, will be of sufficient size by next season to be taken legally and to furnish a gamy fight for the fisherman. In bait fishing, smaller bass frequently are hooked deeply. To tear a barbed hook from the gullet of an undersize fish is to sign its death warrant. Rather than resort to this method of releasing an illegal bass, cut off the hook. Frequently the hook, though embedded in the fish, will not be fatal to it.

Every care should be taken in handling a small bass when it is caught.

Fly fishing for bass offers a thrill second to none for the angler. In this form of bass fishing, hundreds of our fishermen are finding ideal angling. The surge of a gamy bronze-back as it strikes the fly, and the test to which it places a light fly rod provide the highest type of sport. Even small bass are not hooked too deeply and their capture does not mean the depletion of the stock now in our waters. The fly fisherman who delights in casting the tiny feathered lures for trout, will find in the black bass an opponent worthy of his skill.

Our anglers this season will enact an important role in preserving for the future the fine bass fishing now available in Pennsylvania.

O. M. Deibler

Commissioner of Fisheries



For Better Fishing— Kill the Watersnake

OF natural foes to fish life in Pennsylvania waters, the watersnake ranks first. As fish enemy No. 1 it has few serious rivals. Of course, there is that gluttonous reptile, the snapping turtle, individually capable of destroying in a single season more fish than a watersnake, but so abundant is the latter on many of our lakes, ponds, warm water creeks, rivers and trout streams, that the total fish kill by watersnakes is far in excess of that by any other group of predators. From the time it emerges from hibernation in early spring until it again goes into a dormant state in autumn, a watersnake is an active agent of destruction to aquatic life. So varied is its diet, that few species of fishes, if any, escape its depredations. At the present time, despite campaigns during the past two summers to reduce the number of these reptiles, there are still too many on most of our fishing streams.

Several characteristics combine to make this slender, graceful reptile a terror in any water it inhabits. First, it is capable of swallowing an object of much greater circumference than itself, its elastic jaws spreading to accommodate the size of the prey that has been captured. Second is its almost uncanny method of capturing fish. Occasionally, a snake on the alert for food will lie quietly on the bed of a stream, its coloration aiding in concealment. In effect it may resemble a stick of wood. A fish swimming above it is struck swiftly, often on the pectoral, anal or tail fin. In its frantic efforts to escape the captor, the fish tires rapidly, and when an opportunity is

presented, the snake secures a tailhold on an object near shore, dragging its victim from the water. Larger fish are often taken in this way.

On trout waters, the snake has an equally effective method of securing food, particularly during periods of low water. By nature timid fish, trout at the first sign of danger seek refuge beneath an overhanging bank, rock or other shelter. There the watersnake experiences little difficulty in cutting off their escape. This habit on warm water streams is in part accountable for the large number of stone catfish taken by snakes in areas where the "stone rollers" are abundant. In streams where brook trout occur, instances are on record at the Fish Commission of the killing of reptiles containing from six to eight trout, some of them above legal size.

Another important forage area for the watersnake is the shoreline. Frogs, toads and lizards from this portion of its range add variety to its diet. Impelled by hunger, its audacity is frequently amazing. A live net containing fish will sometimes lure it to the attack even while a fisherman is standing by. Again, it will seek entrance to a box containing bait fish and succeed in gorging itself upon them.

An extremely high birth rate is the third contributing factor to the watersnake's ranking as a fish predator. A mature female will often bring forth from 30 to 40 young, usually in late August or early September. Born alive, these young are

active little creatures almost from the instant of their birth. Fortunately for the supply of fish, they are preyed upon by many birds and animals while even fish will destroy them.

In streams recently stocked with trout, the watersnake is capable of playing havoc before the fish have become accustomed to their changed environment. Owing to their destructiveness, fishermen interested in trout fishing will definitely benefit this sport by thinning down the number of watersnakes on trout waters approved for stocking by the Fish Commission.

Our waters today are being subjected to a constantly increasing strain, in direct ratio to the rapid growth in number of fishermen. This condition is in direct contrast to that prevailing in primitive Pennsylvania. When the red man relied upon our inland streams and lakes as a major source of food supply, the vast quantity of various species of native fishes was almost inconceivable. Some idea of this abundance may be had from consulting reports of early historians. Wrote one, in commenting on the great migrations of shad, herring and sturgeon in the Susquehanna and Delaware rivers, "so immense were the multitudes of these fish that the still waters seemed to fill with eddies while the shallows were beaten into foam by them as they struggled to reach their spawning grounds." In the colder streams of mountain and lowland were charr or brook trout in abundance, while smaller streams, tributary to



ABOVE — BOYS "WORKING OUT" ON WATERSNAKES IN A JUNIATA COUNTY TROUT STREAM LAST SUMMER. BELOW — WARDEN C. V. LONG AWARDS A MEDAL.



the great rivers, abounded in suckers, pick-
erel, catfish and other native species.

The inroads of natural predators such as the watersnake, belted kingfisher, blue heron and mink (which occupy prominent positions on the ANGLER front cover this month) served a vital purpose in this primitive set-up. Preying upon fish life that swarmed in the fresh water, they served as an all-important counter-check in preserving the balance of nature. Pollution then was an unknown factor, not the major menace it is today. The comparatively few red men who skillfully devised methods of trapping, spearing and hook-and-line fishing were a mere handful in contrast with our present army of fishermen. A vast chainwork of waters teeming with fish life was available to the Indian fisherman while today pollution has reduced this available fishing area drastically. As a result, modern anglers must concentrate for their sport on comparatively few streams. Obviously, this means overfishing in most instances.

This rather brief comparison of two periods, one primitive, the other modern, is given to emphasize just why the watersnake ranks as a real obstacle in the drive to achieve better fishing here in Pennsylvania. It no longer may be regarded as an important cog in natural balance, for our available fishing waters, as stated before, today are almost without exception being subjected to the drain of over-fishing. To replenish waters depleted annually, the Fish Commission has a system of ten great fish farms and their output is essential in maintaining good fishing. With a yearly catch of millions of game, food, and forage fishes by our anglers, infestation of warm water and trout streams by watersnakes may easily be the balancing point between fair and good fishing. These destructive reptiles, if too numerous, are definitely out of place in the modern angling picture.

Not in the capture of larger game and food fishes alone, however, is the water-

snake in its most dangerous role. With the bass cycle in most of our streams now nearing a peak in abundance, these voracious game fish are exacting an increasingly heavy toll on minnows, stone catfish and other forage fishes. Extensive live bait fishing is placing an additional strain on the forage fishes. And since watersnakes also make heavy inroads on the various species of minnows and stone catfish as well as the young of suckers, bullheads, yellow perch and others, their abundance in any body of water is highly detrimental.

In the watersnake campaign conducted last year, the sportsmen had an active part. Organized drives were conducted in many sections and thousands of snakes were killed. Equally important were the efforts of junior conservationists and for each boy who qualified by presenting conclusive proof that he had killed ten snakes during the year, an appropriate bronze medal inscribed "Junior Conservationist" was awarded. Response to this plan by boys throughout the state was enthusiastic and many qualified for the badges.

Not only is snake hunting of definite benefit to Pennsylvania's aquatic life, but it serves to keep the "shooting eye" of the average sportsman in trim for the hunting season. The head of a watersnake just visible above the stream surface as the reptile glides through the water, is certainly

not an easy target in small-calibre rifle shooting and offers possibilities aplenty for sharpshooting. Mustard seed shot in the small calibre load is also used to deadly advantage.

The following rules will govern the Junior Conservationists' watersnake campaign this year:

No person over 19 years of age can qualify for one of the conservation medals.

Any Boy Scout who kills his quota of 10 watersnakes will report the killing to the scoutmaster in charge of his troop. In turn the scoutmaster will notify the Fish Commission and he will be awarded a medal.

A boy who is not a member of a Scout troop will be awarded a medal if he reports, on his honor, the killing of 10 or more snakes to a fish warden, game warden or official of a sportsmen's organization.

A snake, to be entered in the total killed, must be 12 inches in length.

It is believed that a great many boys who have taken keen interest in the killing of watersnakes to better Pennsylvania fishing are already qualified to receive one of these Conservation Medals.



WILLIAM PINKERTON, JR., OF PHILADELPHIA, WITH A KILL OF WATERSNAKES.

"Sunny" Days

By FREDERICK E. STONE



"SUNNY" FISHING ON THE CONODOGUINET.

THERE are few of the angling fraternity today who did not start their fishing careers in the same manner. Back in the days of barefoot youth, a can of fresh dug worms from the chicken yard, any old pole fate was kind enough to provide and line to match were standard equipment for a "fish-in" trip. Sometimes the pole was ornamented at one end with a few yards of cord string, or if fortune smiled on us and we were able to earn the fat sum of ten cents on an odd job or two, with some very fine cotton fishing line highly recommended to us by the local hardware dealer. Then with the "cunningham" over a shoulder and a can of wriggling garden hackles in hand, we kicked up the old dust road for a mile or two to reach a favorite "hole," where, regardless of conditions, it seemed, were to be found an abundant supply of accommodating sunfish, big yellow-bellied fellows just as full of scrap as beauty.

Each one of us has come a long way since those days insofar as fishing customs are concerned but few of us realize that the change has robbed us of a great angling pleasure. Today the sunfish in our streams are quite improved over the fish we enjoyed catching 20 or 30 years ago, for in recent years these same streams have been stocked with aristocratic cousins of the "pumpkin-seeds" so well known to boyhood, bluegill sunfish. Of beautiful coloration, these bluegills attain a much larger size than does the common "sunny," and there was one taken last year in an up-state lake that measured 12 inches in length, a whopper of a bluegill.

While many of us may occasionally yearn for the barefoot fishing days, it is not necessary in sunfish fishing today to revert back to boyhood custom. Taken on flyrod tackle, I consider the bluegill, weight considered, the gamest fish in fishdom. And furthermore, one can develop real science in fishing for this gamy panfish. As both the pumpkinseed

and bluegill are members of the bass family they are possessed of the same quality of aggressive gameness and therefore can be taken on the same type lures. Of course, not all bass lures are adapted to fishing for this small-mouthed individual.

To my mind, the fly and spinner combination has proved the most productive lure in "sunny" fishing. It affords the greatest angling pleasure for the species, as it requires a certain amount of fishing skill in its manipulation. To hundreds of anglers already familiar with this form of fishing for panfish or bass, little need be said concerning use of fly and spinner, but to those fishermen who have not yet found a means of filling in those idle hours astream when the bass cannot be tempted to strike, fly and spinner fishing for sunnies should be just the ticket.

The first consideration in any branch of fishing is the tackle, for only through the use of proper tackle can best results be obtained in spinner fishing. The first item is the rod. One of medium weight is preferable and it should have a moderate amount of backbone. The line can be any level fly line heavy enough to balance with the weight of the rod. To this should be added bass weight leaders of either 3 or 4½ foot length. The spinners commonly used are the single type size 0. Personally, I prefer the gold plated spinner. The flies should be larger size trout flies of the straight-eyed type so as to be easily attached to the spinner and can be of any pattern. It may be found that the darker patterns will be more productive, for instance the Gray Hackle, Black Gnat and Hare's Ear. For variety, the Professor and Paramachene Belle might be added. This is adequate enough tackle to insure any angler, practically any day of the season when conditions are right, with a nice catch of big sunnies. Furthermore, the only variation needed to convert the outfit to one suit-

able for bass are bass flies and possibly slightly larger spinners.

We would all be happier in the fishing game if we would take a little time at every opportunity to explain to fellow fishermen some of the methods we personally find effective. An exchange of viewpoints, tackle dope and ideas on system while astream helps a lot in making the great brotherhood of anglers more worthwhile.

How and where to fish fly and spinner are the only two items in this connection that can be pointed out in writing. Where to fish should come first because reaching the fish is most important. It will be found in most instances best to fish close to the bottom at all times. To miss casting near to a submerged log, stump, grass patch or large stone is to pass up some of the most likely spots for sunnies. Big sunnies seem to like such locations. Fishing the shoreline also frequently results in strikes, for sunfish are shore feeders and forage actively even along shallow shores, especially if they are fringed with water grasses or weed beds.

Working fly and spinner properly is equally important. Fly and spinner will function more properly and take more fish if fished against the current or better still if fished down and across the stream. Sometimes casting directly across stream and permitting the current to form a belly in the line, dragging the lure downstream in a wide arc, will be found effective. At the same time, a jerky motion should be added by twitching the rod tip slightly. This system is widely used in fly and spinner fishing for bass or panfish.

Almost unlimited possibilities will be found by the angler in fly and spinner fishing, and as he becomes more proficient at it, he cannot fail to be convinced of its potency as a fishing method. The equipment is compact and inexpensive. Linked with this factor that puts it within the reach of the average fisherman's pocketbook is its appeal as the most sporting method at the disposal of the modern fisherman.

Give it a try on sunfish and be convinced.



SCRAPPY FROM STRIKE TO CREEL—A BLUEGILL

Carp Fishing Hints

AN increasing number of Pennsylvania fishermen are turning to carp fishing. While frowned upon by some as a sluggish fish not capable of making much of a fight, a carp weighing even eight pounds is capable of furnishing surprise tactics aplenty for the average fisherman. Perhaps the most essential hint in line with this sport is "handle him with care." Most carp, when caught, are hooked through the lip of the mouth. This lip is so tender that any undue tension on the line may result in tearing out the hook.

Accuracy in casting and proper bait are also important. Carp bait placed accurately and without too much disturbance within the limits of their foraging area generally brings a strike in short order. In selecting a good spot to fish for carp, the timid nature of this fish should be considered. It is often frightened by any strange object that is moving rapidly through the water. Veteran carp fishermen find water with little current best.

During high water or in the spring of the year, carp are often found in backwaters and eddies at the juncture of tributary and main streams, or similar areas. In the dry season, summer and autumn, fish in deep pools or flats bordering them. Apparently, stone or rock bottom is favorite foraging ground for these fish, as the sucking type of mouth is adapted to picking up food with more ease from a rock bed than from muddy or weed bottom, according to Stanley Patricoski of Mount Carmel, an expert carp fisherman.

Finding food or bait it desires, the carp promptly attempts to swallow it. Very often however, the bait may be in a position preventing the fish from absorbing it. The carp will then make numerous attempts to place the bait in a position where it can be consumed with ease. Frequently this action may be noted by the fisherman as his line moves from one to twelve inches over the surface of the water, accompanied by a slight tightening of the line. Again a slackening of the line may be observed. After placing the bait in the desired position, the carp covers it with its mouth.

At the first sting of the hook, the carp usually makes a rush of from 10 to 50 yards, nosediving into rocks on the bottom or other obstructions, and giving short sharp jerks in an effort to snap the line. Sometimes it will surge wildly at the fisherman, make a quick turn and if possible take advantage of any slack line to tear away. This battle of dashing, nosediving and jerking may continue for 40 minutes or more, depending upon the size and physical condition of the fish, and provides a test of skill for any fisherman.

From 50 to 100 yards of line is required for successfully landing a fair size carp, especially a leatherback, according to Patricoski, who considers the leatherback fighting champion of the carp family and has had one of these big fish take from 50 to 100 yards of line in its first run after the hook has been set. Because light colored lines differ often from the color of the bottom, dark or black lines are to be preferred, he says. Owing to the timidity of these fish, the line should not be disturbed after the cast is made, and

should remain in the water from one to one and a half hours before the bait is changed.

There are a number of good carp baits, dough bait composed of vegetables, grain and herb ingredients, the carp's natural food, being favored by many fishermen. Carp are also taken on sweet corn, potatoes and even on occasion worms.

Since they are frequently hooked in the lip, large hooks are to be preferred as they take a deeper hold. Hooks ranging in size from a No. 1 to a No. 4/0 Kirby style or equivalent are recommended. The baited hook should rest on the bottom where the carp seeks its food.

So plentiful are these fish in most of our Pennsylvania warm water streams, that real sport is to be had in fishing for them, and after all, hook and line fishing is the most practical method of carp control.

Trout "Suicide"

To the long list of believe-it-or-not stories, Melvin Hoffman, Allentown barber, contributes one told to him by his fifteen-year-old son, Ralph Hoffman. The boy says he was fishing in the Jordan Creek, a short distance above Allentown, when he observed a monster brown trout rush through the quiet waters of Erdell's Dam, straight for a big rock which he struck with a bang and a moment later his dead body was floating down the stream. The elder Hoffman reported the incident to George Zimmerman, secretary of the Lehigh County Fish and Game Protective Association, whose comment was, "A clear case of suicide." However, the case was turned over to C. Joel Young, Lehigh County fish warden, for further investigation. The trout was 19 inches long.



PHOTO BY LAMAR MUMBAR.
TWO CARP FROM NESHAMINY CREEK, BUCKS COUNTY.
FRANK ADAM, FRUITVILLE, LEFT, WITH A 29-POUNDER.
RIGHT, HENRY JACOBS, FRUITVILLE, WITH AN 18-POUNDER.

Two City Fellows

By GEORGE KESEL and JOHN SWEENEY

THE weather had been fine until the day we started out from Pittsburgh on our long-planned trout trip. But it rained that day—not hard but just enough to make a 200 mile trip after 4 P. M. a real problem. But when that journey was behind us and we rolled into the grounds of the Elks Country Club on Young Woman's Creek, we found our genial host, M. C. Coleman, waiting for us. If we had kept him up, he wouldn't admit it.

"You know about the new regulations on Young Woman's Creek?" he inquired. We did, and asked, "How's the fishing?" "Pretty good," said he. "Stream improvements are being carried on and a regular stocking program is in force."

The next morning dawned bright and clear, and the fishing lived up to the fondest expectations and hopes of the city fellows. John's third cast into the little pool at the foot of a riffle brought out a beautiful eight inch brownie, which because of the special regulations on this stream was not legal, and was carefully returned to the stream to grow up.

We separated, George going upstream from the club and John started down to find a place from which to work back up. But he couldn't find a stopping place. Each turn revealed beautiful water farther down, pools, riffles, still flats, rocky shoals and overhanging banks. Every kind of water the fly fisherman could ask for. He finally took a firm stand—resolutely turned his back on inviting water and worked back up to the club.

It was a morning filled with action for both anglers. Rises were numerous and strikes plentiful. In the swift water the browns and natives hooked gave plenty of action. The first trout was hooked on a Lady Beaverkill dry fly. Others that proved successful in the morning were light Cahill, Brown Bivisible, Coachman and Quill Gordon.

After an excellent lunch at the Club, Charles English, son of the caretaker, guided the city anglers to Slate Run, a drive of about 40 miles largely through state forest—and through some of the most beautiful mountain scenery in the east.

Memorial Day fishermen and picnickers had taken possession of Slate Run by the time our party arrived. It was quite evident that this ideal trout stream, which gets its name from its slate bottom, ranks high in the esteem of anglers. There were many there—probably too many, for almost all we met reported "no luck today."

Here another thrill awaited us—the sight of a new-born baby deer found beside a woodland trail. Words can't describe the beauty of its soft shining coat and graceful head—or its grotesque, long-legged awkwardness when it finally became frightened and ran away from us.

Back to Young Woman's Creek for the evening fishing brought a return of our morning success—two nice plump trout



THE TWO CITY FELLOWS.

apiece, not counting the small ones—and many nerve-tingling rises.

Friday morning we fished an hour before breakfast with enough action to satisfy our craving and then we set out for Kettle Creek some 30 miles away. We visited several streams, stopping to fish the old-time favorite of many anglers—Cross Fork. There were plenty of evidences of trout, but George hooked only one small one and John none.

Then on to Galeton for lunch and our first glimpse of Pine Creek. Because we wanted to see the famous Gorge, we passed up the fishing above Galeton, reported to be excellent, and drove to the Leonard Harrison State Park where Pine Creek, here wide and swift flows between the sheer walls of the Gorge a thousand feet below where we stood. So grand was the sight from this well-kept camping spot that for a time we lost sight of the object of our visit. But we turned to, and soon were climbing down the paths to the stream, with our boots, rods and creels.

Pine Creek is swift—it is almost too deep to wade—but it has the appearance of harboring big fighting fish. Patiently, we cast dry flies over eddies and behind boulders. George changed to bucktail and spinner and hooked into a fourteen inch rainbow. This gamey battler knew all the tricks of the trade—dashing into swirling riffles that put a strain on George's tackle. Gradually he was brought nearer the net—when with a final mighty effort, he tore loose and was away.

"Let's go ashore and walk upstream a ways," said John (we were out about in the middle of the stream). "OK," said George and as we picked our way gingerly through the swift treacherous torrent, a smooth submerged boulder tripped George and he floundered on all fours. John took a quick step to try to help his partner—but you can't do that on Pine Creek. Quick steps spell disaster and John went in, too. Scrambling upright, John saw George on his feet frantically wading down stream, and making very credible speed. "My rod! My rod! I dropped my rod!" he shrieked. That was serious. The pride of his heart, his prize split bamboo was somewhere in the bottom of Pine Creek. But where? In this current it might be anywhere between the scene of the disaster and Harrisburg.

Meanwhile, John had held his position not daring to make another quick move and feeling utterly helpless.

"What's this at my feet?" he muttered looking down into the swift water. "Could it be—here's your rod, George! What are you making such a fuss about?" And by soaking his dry arm, John rescued George's precious rod.

The next morning was spent on Young Woman's Creek again—but the trout were in a perverse mood. Few rises—few hooked—and all below the legal nine inches. As an example of how choosy they were, when standing at the foot of a beautiful little pool, John wasn't able to raise a small trout we could clearly see until he floated his fly precisely over him. A foot to one side or the other, and the trout paid no attention to it. And when he did finally go after it, he splashed near the fly and then disappeared. Very different from two days before.

Well, all things must come to an end, and soon we were bidding adieu to Mr. Coleman and our new friends at the Elks Country Club. They had done everything they could to make our stay pleasant. The beds were comfortable and the food excellent. Meals



THE FAWN RECOGNIZES A FRIEND IN CHARLES ENGLISH OF RENOV.



FISHING PINE CREEK IN THE GORGE.

were ready at any time we wanted. It was hard to stick to our resolution to leave at noon.

However, the most spectacular event of the trip was before us. For many long months we had talked of the Spring Creek development. We had read of the wonders of this "fisherman's paradise" in the *ANGLER*. So we planned to see it on the way back to Pittsburgh.

About four o'clock we arrived and spent an hour observing the Fish Commission's practical demonstration of how a flat, dead stream can be made into ideal trout water. We met and talked with fishermen from far and near, including the editor of the *ANGLER*, Alex Sweigart. "Boys," said he, "if there is a hatch of shad flies this evening, you'll see something." And was he right! The shad flies came—and brought big rainbows, browns and brookies out of that stream with a swirl and a splash that fairly shook the rocks! And not one or two or ten—but literally hundreds of these big fish jumping—and the banks lined with fishermen,

John and George among them furiously casting, tense with expectancy at every cast. How could a fellow keep his attention on his own fly with monster trout churning the surface above, below, across and in front of him! A swirl at the fly—a strike—hooked! And then a struggle between an eager fisherman with light tackle and a barbless-hook fly, and a battling 15 inch aerobat from the rushing stream. It was inspiring to see the skill and patience displayed by the anglers in hooking and landing the big trout—and a demonstration of the caliber of Pennsylvania fishermen.

George hooked several nice trout but they managed to get loose, John had only one small one on his fly.

And then came the unwelcome shriek of the siren that marked the end of the day's fishing. As we took down our rods and prepared to leave, we were still shivering with the excitement of a spectacle that is seen only a few times a year, and one that will live long in the memory of Two City Fellows.

neighbors prefer them to dogs or cats. Emphasis is placed by the frog enthusiasts on "quick income" saying that some raisers have marketable frogs weighing up to three-quarters of a pound in less than one year. In contrast to such claims, the State Fish Commission asserts that under Pennsylvania conditions, a period of 18 to 24 months is required for the development of frogs from the egg stage to the time of transformation of the tadpole, and that a similar period elapses before the frog develops to a marketable size.

The Fish Commission also reports that there are no successful frog farms in Pennsylvania at the present where the stock is confined and reared under artificial conditions. Anyone seriously considering the commercial raising of bullfrogs should write to the Fish Commission in Harrisburg for its Bulletin No. 6 on the subject.

J. Hansell French, Secretary of Agriculture, is advising farmers who make inquiry, to stay by their "old reliable" domestic animals—horses, sheep, cattle, swine and poultry, and not take a "hop, skip and jump" into the bullfrog business.

WEEKLY NEWS BULLETIN
Department of Agriculture.

SETH SAYS



I figger there's most as much fun in watchin' fish in clear water as there is in ketchin' 'em. Jerry Tims an' me some two weeks back went afishin' up at the Sheep hole. Well, sir, it was one o' them off days when even the sunnies ain't much stirred up about bitin'. The sun was seorchin' hot an' Jerry an' me was sittin' with our poles at our feet, a can o' worms betwixt us on a grassy bank above the crick.

Seth, sez Jerry, lookit over there, an' by gosh, along comes the nicest family o' catfish a feller'd wanta see. They was two big catties better'n a foot long apiece an' a reg'lar swarm o' little black fellers. Them old catties was a herdin' 'em along like two hens with chicks. Suddenlike a fair size bass comes along an' them two big catties sure showed they knowed their stuff. They drops to the bottom an' afore you could say "Jack Robinson" the little fellers was in muddy water stirred up ter hide 'em. Jest about the slickest thing a fisherman could wanta see.

The bass kept a-goin' an' we could see he was workin' close to bottom. He'd nose about the rocks but we couldn't make out jest what he was agettin'. Over in the riffle, they was a bunch of them big silver sided fall fish stickin'. Every so often, one o' them'd come to the top an' grab off a fly er mebbe a grasshopper. Thet give Jerry an' me a idea. So we ketched some o' them big yellow hoppers in the grass field near the crick.

By gorry, we hed some o' the best fun a feller'd want. No sooner'd a hopper float over them fallfish when wham an' they'd hit it fer fair. I ketched one thet was sixteen inches long an' hed ten when we quit, none under ten inches. Not bad eatin' either, ef you clean 'em right at the crick an' keep 'em cool. A little boney, mebbe, but then, so's suckers.

BIG TROUT ENTERED IN FISHING CONTEST

The Bartholomew Sporting Goods Store in Lock Haven is offering prizes for the largest brook and brown trout caught in Clinton County this season. The following have been entered so far, according to Warden George Sperring:

April 15—M. S. Forringer, Brown Trout, 20 inches, weight 2 lbs.; April 15—J. M. Rorabaugh, Brown Trout, 17½ inches, weight 1½ lbs.; May 7—Titus Gingery, Brown Trout, 21½ inches, weight 3 lbs. 7 oz.; April 22—Harry McClintic, Brown Trout, 19 inches, weight 2 lbs., 7½ oz.; May 17—Paul Fueger, Brown Trout, 22¼ inches, weight 3 lbs., 15 oz.; April 20—T. H. Ferree, Brook Trout, 13 inches, weight 14½ oz.; April 29—Robert Krape, Brook Trout, 15½ inches, 22 oz.; April 15—Thomas Snyder, Brook Trout, 13½ inches, 13 oz.

All the fish but the last entry were caught in Fishing Creek. Mr. Snyder caught his brook trout in Cedar Run.

WARN FARMERS AGAINST TRYING TO MAKE FORTUNE RAISING BULLFROGS

Dozens of inquiries have reached the Pennsylvania Department of Agriculture in recent weeks from farmers who want to know the possibilities of making money by raising bullfrogs.

Doubtless, this sudden interest in the frog business is the result of literature being distributed in this Commonwealth by at least one so-called "frog canning company" in a southern State, Department officials believe. This company has prepared a gold paper-covered booklet entitled "A Fortune in Frogs" in which the raising of frogs is made to appear most promising. For the convenience of the party receiving the literature, an order blank is included for five pair of the company's special breed of bullfrogs and a complete course of sixteen books on bullfrog culture—all for \$47.50 cash! The literature implies that the company will buy back all frogs raised, but no price is stated.

The company even recommends back-yard frog ponds, saying that this particular breed of frogs is usually quiet and that most

Leave Nature Alone

By F. J. TREMBLEY, Instructor in Biology, Lehigh University

IT was a perfect August morning, I had been pickerel fishing in one of the many small but excellent ponds in Pike County. I had caught four nice ones and they were all I wanted so I had stopped fishing and was sitting on the shore enjoying the sight of the abundant and undisturbed wild life around me. A troupe of wax wings, nut hatches and small warblers were drifting through the white birches along the shore. A little green heron fished quietly along the water's edge. The surface of the pond was very quiet except for the occasional swirl of a pickerel among the lily pads. The shiny black backs of painted turtles dotted most of the half floating, half sinking logs all over the pond. At one end of the pond an old black duck and three nearly grown young were dabbling about in shallow water. A boat with two fishermen put out at the other end of the pond. The picture of the boat and two men drifting quietly about among the lily pads fitted beautifully into the larger scene of contented wild life.

But suddenly there is a loud crack! And the whole picture is ruined. The imbecile that is rowing the boat is shooting at something with a .22. There is absolutely nothing visible that I would possibly want to kill at this time of year. The ducks jump from the water and speed away to some other feeding place. The little green heron slowly follows them. The troupe of small birds become conspicuous by their absence. The rifleman raises his gun again and the irritating snap of the .22 again rolls across the pond. He is shooting at the painted turtles. Immediately one can class that man as either ignorant or wilfully destructive of nature. If he does hit a turtle he will not get it. It will roll off the log and spend several days dying. Those turtles belong in a certain niche in the balance of nature in that pond and should not be killed unless an extended inquiry by a competent naturalist shows that some of them should be removed.

A red tailed hawk soars overhead and simply because it is a hawk, the ignorant marksman shoots at it. Of course, he didn't hit it but if he had a beautiful, beneficial bird would have been destroyed.

At another time on Lake Wallenpaupack I beheld what I consider to be about the height of asininity in the woods. Two men walked right by a free shooting range in an open field. Each had a high powered rifle. They took a boat and went to the other side of the lake and started target shooting in the dense game-filled woods. A young fawn frightened by the shooting was forced into the lake and swam all the way across. Twice it went under and I thought it was lost. It finally made the shore and disappeared. Very likely it never found its mother again, and starved.

So much of this needless disturbance of nature goes on the year around that one wonders that we have any wild life resources left. Thoughtless killing of animals by gun or club, disturbance of mating and nesting animals by the shooting of guns, loud talk and shouting in the woods, the

turning loose of house cats to take their toll, clearing away of underbrush to make a park-like forest where nothing will live, restricting the migrations of fish by building impassable dams, ruining streams by pulling out logs, brush and stones; in these ways and in numerous other ways man is constantly fighting and overcoming the attempts of our animals to survive. There are many man-made perils of wild life such as the clearing of land, roads and automobiles, telephone wires and tall buildings which cannot be helped. A great number however can be stopped by a little thoughtfulness on the part of the people who use the woodlands for recreation. There are too many people who intensely appreciate the instruction and entertainment that Pennsylvania forests have to offer to allow any more destruction of this kind than is absolutely necessary.



HE IS SHOOTING AT THE
PAINTED TURTLES.

From my observations only a small part of the damage done to our wild life is done by sportsmen during the open seasons. The shooting and fishing and the resulting disturbance of natural surroundings are concentrated into a comparatively short period of time and the wiser, better adapted animals simply keep out of the way. Much of the killing done during the open season is absolutely necessary. As we have no wolves to keep their numbers down, the Pennsylvania deer would increase in numbers to such an extent that they would make farming impossible over large areas if the annual toll were not taken by the hunters. The ring neck pheasant very likely would be a worse nuisance if they were allowed to increase without control. Even the common cottontail, although it has a large number of natural enemies left, often becomes a real pest.

But the great mass of our wild life needs strict protection not only during the shooting seasons but throughout the year. This ignorant tampering with the plan of nature by killing every predator as well as a large number of non-predators is bound to wreak havoc upon our wild life.

An excellent case that shows just how much harm may be done in this way is reported in "The Handbook of Birds of Eastern North America," fourth edition, by Frank M. Chapman. A law was passed by the Pennsylvania legislature on June 23, 1885 providing for a bounty of 50¢ to be paid for each hawk, owl, weasel or mink scalp. The law was in effect for 18 months and the state paid out \$90,000 for scalps. Figuring from the number of chickens killed by predators per year in Pennsylvania, this disbursement saved the farmers in all about \$1875.00. This does not take into account the enormous number of rats, mice and other rodents consumed by the predators. If these rodents destroy two cents worth of farm crops a year—an exceedingly conservative estimate—each hawk, owl and weasel is worth \$20 to \$30 a year to the farmer. The rodents also destroy many eggs and young of insectivorous birds. Luckily the law was repealed after 18 months during which over 128,000 hawks and owls were killed.

The recent episode of hawk shooting from the top of Blue Mountain during the spring and fall migrations, reported in the *Nature Magazine* is one of the darkest blots on Pennsylvania sportsmanship in many a year. Thousands of useful birds were killed needlessly. I prefer to consider these men ignorant killers, not sportsmen. The great majority of hawks and owls are definitely beneficial not only to the farmer but to the sportsman. The only exceptions are the Cooper's and sharp shinned hawks, the rare goshawk and the great horned or hoot owl. These birds are quite destructive to smaller birds and game but the trouble in shooting them is that only a very few hunters can recognize them when they see them.

The long-eared owl is often confused with the great horned and killed. Out of 135 pellets cast up by seven long-eared owls, I recovered the skulls of 115 meadow mice, 18 deer mice, 6 shrews and one small bird. These birds would very likely have been shot by a local hunter if I had not shown him what they were eating.

Another group of greatly persecuted animals are the snakes. Only three species of Pennsylvania snakes are poisonous and one of these, the pigmy rattlesnake, is very rare. Most of the other species are definitely beneficial and yet the great majority of hunters and hikers will destroy every snake they can. Rats, mice and other rodents form the bulk of the food of most snakes. Some snakes are insectivorous. Many eat earthworms to a large extent. A few depend mostly on amphibians for their food. The farmer need not worry about blacksnakes or milk-snakes milking his cows or drinking the milk from pails or pans. I know from laboratory experimentation that at least these two species will not drink milk even when they are very thirsty. The old story of a blacksnake milking a cow dry is just another wild nature story with no foundation. There is not a snake in Pennsylvania that will hold that much milk even if he could get it. He would burst. When I see a full grown man who has just wreaked

vengeance on 15 inches of garter snake that would have quite a struggle to down a good sized night crawler I don't know which to pity more, the snake or the man. Of course, poisonous snakes should be exterminated when their habitat is close to that of humans, especially if children are present. Of all the other snakes only one is doubtfully detrimental, the common water snake, and even that one may serve in keeping down the numbers of minnows and suckers in a stream or pond. In streams where water snakes are very abundant they may be thinned but it is very doubtful that extermination of water snakes will help make better fishing.

Still another misunderstood group is the so-called vermin fish such as the garpike, bowfin and carp. After studying methods of eradicating the garpike in Lake Champlain, during all of one summer and part of another, I reached the conclusion that they should not be eradicated. They serve a definite purpose in keeping down the numbers of sunfish, perch and golden shiners which if allowed to increase would be a worse nuisance than the gars. The carp is not a native fish but it has become very well naturalized and young carp certainly form excellent forage fish for game fish of various kinds. Carp do not eat game fish and moreover there is very little evidence that they eat very much spawn of game fishes.

There are only three animals in Pennsylvania that should be persecuted to any great extent, the common crow, the European starling and the barn rat. The birds might be considered beneficial if there were not so many of them and if they were not increasing too rapidly. It is worthy of note that in all three of these cases the superabundance of the animals is due to some tampering with the balance of nature by man. Crows are never very abundant in heavily forested regions and very likely their food habits lean toward the beneficial side. In country that has been cleared and cultivated by man however the crow, released from many of his natural enemies and given an abundance of food, increases to many times his former numbers. The food habits of the starling are definitely beneficial but in this case the harm comes in the vast numbers of starlings robbing thousands of our native, hole-nesting species of nesting sites. Also the winter roosting habits of starlings in city buildings causes a great deal of defacement. The starling of course is not a native bird and his case illustrates the harm done by importing an apparently desirable species from one country into another. Starlings are fairly good as food and would form quite an important food supply if the American public were not so squeamish.

The barn rat is a perfect example of the harm done by importing foreign animals. It is by far the worst of our vermin animals. It is a sly, intelligent, voracious and exceedingly adaptable animal. It is quite omnivorous. It can live in houses, barns, open fields and even take to the water and become almost as aquatic as a muskrat. They are destroyers of birds' eggs and young birds. Their rate of reproduction is by far the greatest of any of our warm blooded animals. To sum up the economic status of the barn rat, it is an unmitigated pest; and the best defenses man and our native animals have against this pest are the hawks,

owls, snakes, weasels, wildcats and foxes that so many farmers and sportsmen shoot on sight. If these predators were to be exterminated not only would most of our game animals vanish but also it would be doubtful if man could live in a country so overrun by rats. It is very doubtful that man could keep rats under any control at all without the predators.

Skunks, opossums, weasels, wildcats and foxes are killed indiscriminately by farmers and hunters. All of them are predators but all of them also belong as natives in our woods. They may be killed if they become too thick in a certain area but that does not mean that they should be exterminated. To a person who really enjoys nature the sight of a wildcat slipping away through the brush is worth many a long mile of hiking. Wildcats kill grouse as well as many rodents. The rodents probably destroy many more grouse eggs than the wildcats destroy grouse. About the same may be said of skunks, opossums, weasels and foxes. One often reads the statement that vermin kill more game than hunters do but that is only a small part of the story. What other forms do the vermin animals eat besides the game? We have so many species of animals and their lives are so inextricably dependent on each other that very few people, if any, are competent to lay down any rules as to which animals should be killed and which should not.

Predators are always giving one very real service to the animals on which they prey and that is to keep the race strong. Any weakling in nature is sure to be killed by some preying animal and thereby does not perpetuate his kind. Consequently the species is kept uniform and vigorous. It is the same action that is accomplished artificially by a farmer in selecting breeding stock. The effects of a lack of such selection may be seen in the human species. Civilization and medicine have blunted any such selection of humans and how few humans retain throughout life the virility and stamina of wild animals? At one time it was thought that killing the predators on the English game preserves would increase the amount of game. It is now quite generally recognized that instead of increasing the amount of game, the lack of predators increases the amount of contagious diseases among the game animals. The keener conservationists of the United States are beginning to realize this principle although somewhat belatedly.

A few rules may be given as a guide to the great number of nature lovers of Pennsylvania to keep the Pennsylvania forests in an enjoyable condition.

1. Do not kill anything unless you know what it is and why you should kill it. If in doubt, leave it alone.
2. If you are a target practice devotee do your target shooting in an open field. Stay out of the woods.
3. Don't be afraid to show your displeasure when needless and harmful killing is done by others.
4. Do not import any animals (including fish) from one region to another without the knowledge and consent of properly constituted authorities.
5. Do not make unnecessary disturbances in the woods during the breeding seasons of our animals.

6. Enjoy the forests to the greatest degree but enjoy it with a view to future enjoyment.

7. Of course, be careful with fire the greatest destroyer of all.

Nature has spent millions of years building up a certain section of earth called Pennsylvania and fitting it out with a large number of species of plants and animals, all of which are fitted to live with each other. No one species may become too abundant simply because the species that prey on it will increase also and at the same time its food supply will decrease. Who are we to say which should be killed and which should not? We received these wild life resources as a heritage. Should we not also pass them on as an equal or greater heritage?



PINE CREEK SMALLMOUTH BASS

VARIETY IN THIS CATCH

G. Earle Shoop, Secretary of the Shamokin Fish, Game and Forestry Association, reports a catch of fish from the North Branch of the Susquehanna River, near Wyalusing, that had unusual variety.

Shoop and his companions, Henry Clayberger, Norman Harris and Morris Byierly returned from their North Branch trip with 26 smallmouth bass ranging in size to 17 inches, five suckers, weighing from two to two and one-half pounds, two eels, a catfish, a carp, yellow perch and sunfish.

To determine the weight of any fish, multiply the square of the girth with the length and divide by 800.

BIG BROWNIES

Schuylkill County anglers have been doing their stuff in taking big brown trout this year, according to Warden Anthony Lech of Shenandoah. Fishing in Cold Run Creek, Floyd Eveland, Tamaqua, caught a brown trout measuring 20¼ inches and weighing 3¼ pounds. Monroe Houser of Barnesville caught a 21 inch trout in Locust Creek. This brownie weighed 2¾ pounds.

Beaver-Trout Investigation in Michigan

By J. C. SALYER, Institute for Fisheries Research, University of Michigan
(Courtesy - "American Game")

(Part 2)

B. Beaver Dams Interfere Very Seriously With the Spawning Runs of the Trout

1. Tests by tagging fish show that trout do not pass upstream over the ordinary beaver dam.

2. But trout can and frequently do go downstream over a beaver dam to spawn. Unfortunately in most streams the better spawning areas are upstream near headwaters.

3. After lying inactive below an impassable dam for several days, trout spawn just below it. Later silting and the low oxygen content of water from the ice-sealed pond destroys the eggs in the redds from two to four hundred yards downstream below the dam.

4. Trout cannot successfully spawn within beaver ponds due to silt conditions and lack of current. The beds are covered with a black suffocating silt in the first twenty-four hours after spawning. Deprived of an orientating current the male trout do not behave normally during the spawning act in beaver ponds.

5. Freezing of the beaver pond subsequently prevents the stream from warming up during warm weather following a cold snap, sufficiently to permit the trout to resume spawning.

6. As their numbers expand and new colonies are established on a given stream, beaver progressively reduce the mileage of the stream where trout can spawn, in as much as the trout are unable to negotiate the home dams. On the headwaters region of the river most intensively studied the beaver in three years occupancy reduced the available spawning area to a scant one hundred yards of suitable stream.

C. Permanent Effects of Beaver on Trout Stream Topography

1. Sections of the stream repeatedly the site of beaver dams are generally permanently widened and made more shallow with a persistent sandy sump after the dams are out.

2. The shade in the immediate environs of the dam is destroyed. This is, however, of secondary importance in the ultimate welfare of the stream.

3. If there is not sufficient current to wash out a dam on a lowland stream, the vegetation creeps out over the dam from both sides and the dam is finally sodded in. It will not wash out after this condition is once reached. After years of beaver occupancy in a stream of this type, the end result is a succession of marshy terraces where once were dams, then a series of hummocky, wet meadows, and finally the complete extinction of the stream itself. Many fine springfed tributaries of our better trout streams have been lost in this manner. This whole history can transpire in the relatively short interval of from twenty to forty years.

4. Even more hopeless is the fate of a trout stream which, when dammed by beaver, goes into an acid-heath-bog type of succession which culminates in a peat bog. This is not infrequent in the Upper Penin-



GAME COMMISSION PHOTO.
BEAVER SWIMMING.

sula streams, but rather rare below the Straits.

5. Selective cutting of stream-side forest trees for food by beaver results in scattered shade removed to some distance from the stream banks. The banks lose their dark, moist condition and finally dry up and begin eroding. Streamside erosion is a major factor in limiting trout production.

D. Beaver Ponds Greatly Increase Predator Pressure on Trout Streams

1. By damming and opening up broad water areas previously shielded by overhanging shrubbery, beaver open long stretches of virgin water to fishing by herons, kingfishers, and bitterns.

2. Turtles and water snakes move into the more favorable beaver pond habitat.

3. In the first two years of pond existence, trout have a tendency to drop down into the pond from considerable distances upstream. Thus concentrated, their loss to predators is greater than when the fish population is diluted by the more extensive natural stream area.

E. Parasites Increase as Beaver Become Prevalent on a Trout Stream

1. Michigan trout waters showing heavy strigeid infestation (black spot disease) of their trout almost invariably have had a recent history of beaver activity.

2. Gill lice are most prevalent in beaver ponds, especially ponds over five years old.

3. Round stomach worm infestation of trout in the old ponds of the Upper Peninsula is becoming yearly more common.

F. Beaver Ponds First Increase, Later Decrease the Trout Catch

1. The environment for trout in a newly created pond is so excellent that trout concentrate there from several miles upstream. In typical beaver-trout streams, having a beaver density of two active colonies, per mile, the fishing history is about as follows:

a. The legal limit is often caught in from one to two hours effort the first year.

b. Fishing remains good here the second year but the fishing effort runs from two to four hours for the limit catch.

c. In the third year, the end is approaching for one legal fish on the average is caught in about four to six hours.

d. In the fourth year, the fishing is

practically terminated, for a scant dozen legal fish is the typical catch for the entire summer. The beaver themselves have most often exhausted their food supply locally and have moved up or downstream.

G. Beaver Destroy Trout Conditions in Trout Lakes

1. Damming of a trout lake's outlet and raising of the water level by beaver means the extinction of the lake as a trout lake.

2. The whole ecology of the lake changes: (a) it becomes warmer, (b) warm water pond weeds come in, (c) perch and pickerel quickly become the dominant fish.

3. This transition is well initiated at the end of the first five years after the dam is made and is finally complete in the tenth year.

(Space does not permit a detailed account of the factors responsible for such ecological reversal. The formal report will deal with this subject extensively. But it should be repeated again—the presence of a beaver dam on trout lakes spells the doom of its trout population.)

H. Beaver Ponds Also Have Beneficial Effects on Trout

1. A beaver pond during its first year supplies food, shade, and cover decidedly superior to that of the natural stream.

2. The beaver pond supplies at least two years of good fishing and more if it is not blocked in by another dam immediately upstream (which fortunately is generally the rule).

3. The beaver pond, before the onset of severe stagnation is an effective winter abode for trout on certain shallow streams.

4. The innate fertility of a beaver pond increases food production for some distance downstream in impoverished, especially sandy streams.

5. The beaver pond is indispensable in maintaining continuous trout fishing in the rocky, short, down-plunging streams which flow into Lake Superior, because:

a. These streams are much subject to local drouth.

b. The excessive exposed rock surface warms up the water dangerously in summer unless covered by water backed up by a dam.

c. Wintering pools, such as are furnished by beaver dams are needed here.

6. Beaver create fishing where there was none before. Tiny spring trickles when dammed by beaver often become a trout pond as large as two to thirty acres.

Suggestions for Beaver-Trout Management

Michigan is long since past the "let alone" policy in its wildlife management. It has in the last decade become a leader in wildlife research and management. Its deer, grouse, and trout management programs among others seem highly successful. There is no reason why the beaver-trout complex cannot be equally well managed.

The beaver should not be permitted to continue occupying our trout streams without control. Unless a sound beaver-trout management program is adopted and car-

ried out, a choice will need be made between beaver and trout. On the other hand, this investigation has indicated that, under proper management, beaver can readily be made an aid in maintaining trout fishing, rather than a menace as at present. Under the system of management to be proposed, it is believed that, as a minimum result, the present beaver population can be maintained without material damage to the trout fishing.

Both beaver and trout are exceedingly desirable natural resources. It is not needful to point out the source of revenue trout fishing is to the state and individual in Michigan. Moreover, the presence of the right number of beaver on our streams guarantees more otter, muskrats, and even deer in the country. The life cycles of beaver and otter are so interlinked that it is doubtful if the latter could maintain itself in Michigan without the former.

Beaver Control Points

Therefore the situation calls for the definite institution of strict and scientific beaver management on Michigan streams. This cannot be too strongly emphasized. The

a region, or for other reasons have abandoned the area.

Routine Dam Blowing Effective

4. Effective MANAGEMENT is only to be obtained by a *systematized* and *routine* blowing out of dams after they have fulfilled their greatest mutual service to both beaver and trout. The age of the dam at which it should be blown out depends on the main features in the natural history of both beaver and trout. The investigation has largely been pointed toward the determination of the proper time for destroying the dams. It is believed that this point has been satisfactorily determined for different types of trout streams, which will be classified in the further report. It was found that the speed and completeness of stream recovery as well as the efficiency of operation vary with the method used in blowing out the dams. In the experimental blowing of dams there was developed an improved technique, which will be described in the next report.

5. The recovery of a stream, that is its transformation from a semi-stagnant beaver pond into good trout water, can be hastened



BEAVER DAM.

GAME COMMISSION PHOTO.

future of trout fishing in Michigan in the writer's opinion is in real jeopardy if the crisis is ignored. Yet control or management of the beaver seems relatively simple. The essential points, here mentioned, will be enlarged upon in the more extensive report being prepared.

1. A partial control of the beaver can be afforded by trapping, regulated with due consideration to the welfare of the beaver and to the economic interests of the trapper. Evidence on the proper season for trapping was obtained during the investigation, and will be given in the fuller report

2. Excessive trapping, however, does not seem to be a reasonable solution. In the high years of their cycle, beaver have increased despite this check.

3. The vital point of the problem is that the pernicious effects of beaver on trout continue, even become accentuated, after beaver have become completely trapped out from

by stream improvement operations. Experimentally, fine spawning beds have been uncovered by the use of deflectors placed on a bottom of deep silt formerly laid down by a beaver pond, and these beds have been extensively used.

The opinion should be repeated that, although the main features of the beaver-trout problem have apparently been solved by this investigation, a continuation of the research is most distinctly called for. New lines of inquiry have been opened up that need further study. Further study and probably continuous observation of beaver-trout relations throughout the state will be needed to determine the finer details of the beaver-trout management program and activities.

Finally it may be pointed out that the urgency of the need for beaver-trout management is evident from our estimate that 25 per cent of the mileage of Michigan trout streams becomes the bottom of a beaver pond every ten years.

Board Member Named

Announcement has been made of the appointment of Milton L. Peek, Ithaca, Delaware County, to the Board of Fish Commissioners by Governor George H. Earle. He succeeds George E. Gilchrist of Lake Como, Wayne County. The Senate has confirmed the nomination of Mr. Peek, who is an ardent conservationist, intensely interested in the drive for better fishing in Pennsylvania.

PLAYING THE GAME

A very interesting letter came to the Editor's desk from an old dyed-in-the-wool sucker fisherman. This old fisherman was very profuse in his praise of the ANGLER in general, but especially in what it had done for him.

In this letter he stated that previous to his reading the ANGLER, he was inclined to cheat considerably on the fish laws, but that since reading the ANGLER regularly, he just felt so much ashamed of himself that he has not cheated once in the past two years.

This letter was written in the vernacular of Pennsylvania Dutch and was very interesting because it clearly demonstrates the fact that though some may have been cheating on the game and fish laws for many years, none are too old to be reformed.

The Editor sincerely wishes that many thousand others in the State might read the ANGLER with the same result, as it would greatly lessen the burden of the enforcement officers, and save thousands of dollars that are spent in warden service that could be much more profitably spent in providing an additional fish hatchery each year out of the funds that are spent to keep the violators in line.

The real sportsmen, who need no watching, are called on to pay these bills, as well as being compelled to see their game and fish stolen by those who do not play the game according to the rules.

"LAST LAUGH"

About a year back the ANGLER printed a report about a fisherman trying his luck on Killwell Creek who threw back in the water two brown trout, believing them to be bass, according to Warden R. C. Bailey of Youngsville. No name was printed with the article, but now along comes a letter from Thomas Cornish, R. D. 2, Centerville, Crawford County, and it seems he has a real claim to the "Last Laugh." Writes Angler Cornish:

"The enclosed article caused me to be the butt of some good natured kidding, also some not so good natured, by my friends whom I had told about catching the two bass. Was fishing the same Killwell Creek this season in company with David Hotchkiss and Vic Houtling of Centerville, also a youngster named Mack from Mt. Hope, when I again caught a rock bass, also a black bass about 11 inches long. Both were lightly hooked and returned to the water. It is obvious that this was the sporting thing to do, although according to Warden Bailey they had no right to be in Killwell Creek. I'll be watching for the correction as the 'last laugh is the loudest.'"

MAY DISTRIBUTION FROM HATCHERIES

Various species of fish were stocked in Pennsylvania waters from the Fish Commission's hatcheries during May. Included in the number released were 451,695,000 yellow perch fry, 1,000 yearling yellow perch, 3-inch average, 13,755,975 pike-perch or wall-eyed pike fry, 1,386,997 brook trout fingerlings, 20,970 brook trout from 7 to 12 inches in length, 34,980 brown trout, 8 to 14 inches in length, 1,580 rainbow trout, 9 to 10 inches in length, and 10,450 adult suckers.

The following waters were stocked in the various counties:

Adams—yellow perch, Little Marsh Creek, Marsh Creek, Conewago Creek.

Allegheny—yellow perch, Allegheny River.

Armstrong—yellow perch, Allegheny River, Craig Run; pike perch, Allegheny River.

Beaver—yellow perch, North Fork of Little Beaver Run, Little Beaver River; pike perch, Little Beaver River, North Fork of Little Beaver River.

Bedford—yellow perch, Lake Gordon, Thos. W. Koon Lake, Woodbury Dam; brown trout, Wills Creek, Yellow Creek; pike perch, Raystown Branch of Juniata River, Lake Gordon.

Berks—yellow perch, Little Swatara Creek, Longs Pond on Lehigh Creek, Maiden Creek, Wyomissing Creek, Sacony Creek, Boyertown Water Co. Dam, Monocacy Creek, French Creek, Conestoga Creek, Tulpehocken Creek, Manatawny Creek; suckers, Manatawny Creek.

Blair—yellow perch, Frankstown Branch of Juniata River, Brush Run; pike perch, Frankstown Branch of Juniata River, Williamsburg Dam on Frankstown Branch of Juniata River.

Bradford—yellow perch, Rockwell Pond, Sugar Creek, Mountain Lake, Sunfish Pond, Nephawin Lake, Wesauking Lake, Beaver Meadow Pond, Stowell Pond, Cooks Pond, Moody Pond, Herricksville Rod and Gun Club Pond, Blakeslee Pond, Barnes Dam on Stony Creek; pike perch, North Branch Susquehanna River, Chemung River.

Bucks—yellow perch, East Swamp Creek, Tohickon Creek, Mill Pond, Maple Beach Pond; brown trout, Pine Creek; suckers, East Swamp Creek.

Butler—yellow perch, Buhl's Channel, Harmony Junction Reservoir, Thorn Run Dam, Boydstown Dam, Oneida Dam; pike perch, Wolf Creek; brook trout, Silver Creek.

Cambria—yellow perch, Dooman Dam, Elias Edwards Dam, Howe Run, Newborough Dam, Chest Creek, Walters Dam, Davis Run, St. Francis Lake, North Branch of Little Conemaugh River, Shaft Dam; brook trout, Spring Run.

Cameron—brown trout, Driftwood Branch; yellow perch, Bowers Pond, Devling Pond.

Carbon—yellow perch, Lake Harmony, Round Pond, Mahoning Creek, Kittatiny Pond, Little Gap Ice Dam, Lizard Creek, Mud Dam, Pohopoco Creek; pike perch, Lizard Creek.

Centre—yellow perch, Moshannon Lake, Penns Creek, Sinking Creek; brown trout, Spring Creek, Bald Eagle Creek, Penns Creek; brook trout, South Fork Beech Creek; suckers, Moshannon Lake, Penns Creek.

Chester—yellow perch, Mill Pond, Muddy

Creek, Delchester Farms Dam on Ridley Creek, Delchester Farms Dam on Indian Creek, West Branch Brandywine Creek, East Branch Octoraro Creek; brown trout, White Clay Creek; brook trout, Valley Creek; suckers, Brandywine Creek.

Clarion—yellow perch, Clarion River, Paint Creek, Licking Creek, Allegheny River, Red Bank Creek.

Clearfield—yellow perch, Berwinsdale Lake, Beaver Run, Little Clearfield Creek, Sandy Lick Creek, Tannery Dam, Kneedlers Dam, Helvatia Dam, Chest Creek; brown trout, Little Clearfield Creek, Laurel Run; brook trout, Hackenberry Run.

Clinton—brown trout, Right Branch of East Branch Young Woman's Creek, Young Woman's Creek, Left Branch Young Woman's Creek; brown trout, Big Fishing Creek; suckers, Big Fishing Creek.

Columbia—yellow perch, Huntingdon Creek, Roaring Creek.

Crawford—yellow perch, French Creek, Conneaut Creek, Conneaut Creek, Sugar Lake, Oil Creek, Lake Canadohta, Conneaut Lake, Clear Lake, Crooked Creek; pike perch, Lake Canadohta, French Creek, Conneaut Lake, Crooked Creek, Oil Creek.

Cumberland—yellow perch, Fuller Lake, Mountain Creek, Conodoguinet Creek, Means Run; brown trout, Yellow Breeches Creek; suckers, Yellow Breeches Creek, Hogestown Run, Trindle Spring.

Dauphin—yellow perch, Susquehanna River, Penna. Canal Reservoir, Wildwood Lake; brown trout, Manada Creek; pike perch, Susquehanna River; suckers, Swatara Creek.

Delaware—yellow perch, Kaolin Quarry Hole.

Elk—yellow perch, Ridgway Water Works Reservoir, Black Swamp Pond.

Eric—yellow perch, French Creek, West Branch French Creek, Runion Creek, Elk Creek, Lake LeBoeuf, Edinboro Lake, Lake Pleasant, Conneaut Creek, Presque Isle Bay Hatchery; pike perch, West Branch French Creek, Conneaut Creek.

Fayette—yellow perch, Layton Reservoir, Brownfield Dam, Cool Springs Dam, Star Junction Lower Dam on Washington Run, Star Junction Upper Dam on Washington Run, Smock Dam, Dunbar Corp. Dam No. 1 on Dunbar Creek.

Forest—yellow perch, Allegheny River.

Franklin—yellow perch, West Branch Conococheague Creek, Indian Lake, Conococheague Creek, Conodoguinet Creek, Muddy Run, Stony Point Dam on Furnace Run; brown trout, West Branch of Conococheague Creek.

Fulton—yellow perch, Licking Creek, Cove Creek.

Green—yellow perch, Muddy Creek, Dunkard Creek, Bowns Fork Creek, Penna. Fork tributary to Fish Creek, South Fork of Ten Mile Creek, Whiteley Creek, Wheeling Creek, North Fork of Dunkard Fork of Wheeling Creek, South Fork of Wheeling Creek.

Huntingdon—yellow perch, Pa. Central Dam on the Frankstown Branch of Juniata River, Pa. Central Dam on the Raystown Branch of the Juniata River; pike perch, Juniata River, Penna. Central Dam on Frankstown Branch of Juniata River, Penna. Central Dam on Raystown Branch of the Juniata River, Raystown Branch of Juniata River; suckers, Great Trough Creek.

Indiana—yellow perch, Little Mahoning Creek, Yellow Creek, Cush Cushion Creek.

Jefferson—yellow perch, Boro Storage Dam, Brookville Water Supply Dam, Elnora Dam, Sandy Lick Creek, Strouse Dam, Reeds Dam, Red Bank Creek, Sandy Lick Creek; brook trout, Little Sandy Creek, Mill Creek, Cathers Run, East Branch Mahoning Creek, South Fork North Fork Creek, North Fork Red Bank Creek, Five Mile Run, Laurel Run, Coder Run, North Fork Red Bank Creek, Rattle Snake Run, Camp Run.

Juniata—yellow perch, Cocolamus Creek; brown trout, Lost Creek.

Lackawanna—yellow perch, Crystal Lake, Newton Lake, Heart Lake, Chapman Lake, Sicklers Lake, Baylor Pond, Deer Lake, Handsome Lake, Mud Pond, Wind Fall Pond, Johnson Lake, Lower Klondyke Lake, West End Lake, Ford Pond, Lake Sheridan, Moosic Lake.

Lancaster—yellow perch, Safe Harbor Dam on Susquehanna River, Holtwood Dam on Susquehanna River, Conowingo Dam on Susquehanna River, Pequea Creek, Mill Creek, Octoraro Creek, Cocalico Creek, Stovers Dam, Little Chickies Creek, Cocalico Creek, Big Chickies Creek; brown trout, Big Chickies Creek; pike perch, Conowingo Dam on Susquehanna River, Holtwood Dam on Susquehanna River, Safe Harbor Dam on Susquehanna River; brook trout, Gladfelters Run.

Lawrence—yellow perch, Shenango River, Carbon Quarries Pool, Quarry Hole No. 5, North Fork Little Beaver River, Neshannock Creek, Cement Dam, Clarks Pond, Hottenbaugh Creek; pike perch, North Fork Little Beaver River.

Lehigh—yellow perch, Ontelaunc Creek, Henninger Mine Hole, Orm Rod Mine Hole, Jordan Creek.

Luzerne—yellow perch, Three Cornered Lake, Grassy Pond, Sylvan Lake, North Pond, Bryants Ice Dam, Penn Lake, Ice Lake, White Haven Dam, Mountain Ice Co. Dam No. 1, Harveyville Dam, Sugar Notch Dam, Nuangola Lake, Cummings Pond, Browns Pond, Ider Pond, Harveys Lake; pike perch, Harveys Lake, North Branch Susquehanna River.

Lycoming—yellow perch, Mill Creek, Little Muncy Creek, Muncy Creek, Loyalsock Creek, Lycoming Creek, Highland Lake, Pine Creek, Tiadighton District State Forest; brown trout, Larrys Creek, Cedar Run.

McKean—yellow perch, Mellander Pond, Kushequa Pond, Gilford Pond; brown trout, Marvin Creek; brook trout, South Branch Kinzua Creek, Seven Mile Run, Bell Run, West Clarion Creek, West Branch Tununguent Creek, Sugar Run.

Mercer—yellow perch, West Branch Little Wolf Creek, Wolf Creek, Little Shenango River, Shenango River, Pymatuning Creek, Neshannock Creek, Sandy Creek, Furance Pond, Buhl Lake, Sandy Lake.

Mifflin—yellow perch, Juniata Country Club Dam on the Juniata River, Jacks Creek; pike perch, Juniata River, Jacks Creek, Juniata Country Club Dam on the Juniata; suckers, Juniata Country Club Dam on Juniata River.

Monroe—yellow perch, Coleman Pond, Little Saylor Lake, Mineola Lake, Weir Lake, Pocono Summit Lake, Hawkeye Pond, Youngs Pond, Mountain Ice Co. Dam No. 1, Echo Lake (Coolbaugh), A. L. Rake's Pond,

Arlington Lake, Half Moon Pond; brown trout, Tobyhanna Creek; pike perch, Delaware River; brook trout, Buck Hill Creek, Scott Run.

Montgomery—yellow perch, Perkiomen Creek, Pennypack Creek, N.E. Br. Perkiomen Creek, Jacoby Creek, Ridge Valley Creek; suckers, Perkiomen Creek.

Montour—yellow perch, Chillisquaue Creek, Mahoning Creek; suckers, Chillisquaue Creek.

Northampton—yellow perch, Delaware River, Jacoby Creek, Paint Mill Dam on Monocacy Creek, Hokendauqua Creek, Brays Lake; brook trout, Martins Creek, Waltz Creek; suckers, Hokendauqua Creek.

Northumberland—yellow perch, Chillisquaue Creek, Mahantongo Creek.

Perry—yellow perch, Shermans Creek, Shermans Creek in P. P. & L. Dam, Little Buffalo Creek, Cocolamus Creek; pike perch, Juniata River; suckers, Buffalo Creek.

Philadelphia—yellow perch, Chamonix Lake, League Island Lake.

Pike—yellow perch, Twin Lakes, Lower Shohola Falls Dam, Sawkill Pond, Mud Pond (Dingman), Little Mud Pond, Minisink Lake, White Deer Lake, Greeley Lake, Welcome Lake, View Lake, Big Walker Lake, Forest Lake, Taminent Lake, Pecks Pond, Bruce Lake, Fairview Lake, Big Tink Pond, Westcolang Lake, Lake Wallenpaupack, Promise Land Pond; brown trout, Shohola Creek; pike perch, Delaware River, Lake Wallenpaupack; brook trout, Middle Bushkill Creek.

Potter—yellow perch, Rose Lake; brown trout, Pine Creek; brook trout, Big Moores Run.

Schuylkill—yellow perch, Deep Creek, Hosensock Creek, Mahoning Creek, Cumbola Dam; pike perch, Lizard Creek; brook trout, Deep Creek.

Snyder—yellow perch, North Branch Mahantongo Creek, Richfield Dam, North Branch Middle Creek, Penns Creek, Middle Creek; suckers, North Branch Middle Creek.

Somerset—yellow perch, Rowena Lake, Kimberly Run, West Branch of Coxes Creek, Middle Branch, Bigby Creek, McDonaldson Dam.

Sullivan—yellow perch, Hunters Lake, Eagles Mere Lake, Splash Dam on Mehoopany Creek, Mud Lake, Williams Lake, Elk Lake; brown trout, Loyalsock Creek.

Susquehanna—yellow perch, Pages Pond, Hells Half Acre, Montrose Lake, Quaker Lake, Laurel Lake, Middle Lake, Upper Lake, Lower Lake, Tyler Lake, Beaver Pond, Lakeside Pond, Lords Pond, Schoolys Pond, Carr Lake, Lewis Lake, Cotterel Lake, Wrighter Lake, Forest Lake, Lowe Lake, Heart Lake, South Pond, Silver Lake, Big Elk Lake, Butler Lake, Tingley Pond, Bigsby's Pond, Alford Pond, Tuscarora Pond, Comfort Pond, Fox Pond, Sterns Lake, Round Pond, Idlewild Lake; pike perch, North Branch Susquehanna River.

Tioga—yellow perch, Crooked Creek, Marsh Creek, Longwell Pond, Blacks Pond; brown trout, Cedar Run.

Union—yellow perch, New Berlin Dam on Penns Creek, Millmont Dam, Laurel Park Dam, Buffalo Creek, Little Buffalo Creek; brown trout, Weikert Run; suckers, Buffalo Creek.

Verango—yellow perch, French Creek, Lake Creek, Allegheny River, Sandy Creek,

Polk Sanitarium Dam; pike perch, Allegheny River, French Creek.

Warren—pike perch, Brokenstraw Creek, Columbus Pond, Allegheny River, Conewango Creek; pike perch, Conewango Creek, Brokenstraw Creek, Allegheny River; brook trout, Arnot Creek, Four Mile Run, Hemlock Creek, Farnsworth Creek.

Washington—yellow perch, Buffalo Creek, Cross Creek, Little Chartiers Creek, Ten Mile Creek, Laugloth Mill Dam, Aunt Claras Fork or Middle King Creek, Kings Creek.

Wayne—yellow perch, Lake Wallenpaupack, Bigelow Lake, Kizer Dam, Lake Henry, Duck Harbor Lake, Little Union Lake, Rose Pond, Adams Lake, Beach Lake, North Jersey Lake, Gouldsboro Ice Pond, Seelyville Pond, Keens Pond, Independent Lake, Bone Pond, Hiawatha Lake, Lake Como, Sly Lake, Long Pond (Preston), Coxton Lake, Shelawken Lake, Starlight Lake, Island Lake, Long Pond (Clinton), White Oak Pond, Goose Pond, Elk Lake, Lake Ladore, Lower Woods Pond, Justin Pond, Bunnell Pond, Snag Pond, Long Pond (Paupack), Cadjaw Pond, Crockenburg Pond, Quinsigamond Lake; brown trout, Dyberry Creek, Equinunk Creek, Little Equinunk Creek; pike perch, Lake Wallenpaupack, Delaware River; brook trout, West Branch Dyberry Creek; rainbow trout, West Branch Lackawaxen, West Branch Wallenpaupack.

Westmoreland—yellow perch, Greenwalt Reservoir, St. Vincent Lake, Carpentertown Dam No. 1 on Boyers Run, Carpentertown Dam No. 2 on Boyers Run, Mammoth Dam on Wylie Run, Beatty Reservoir, Bagley Reservoir; brown trout, Jacobs Creek, Linn Run, Tub Mill Run.

Wyoming—yellow perch, Edinger Pond, Nigger Pond, Chamberlin Pond, Lake Winola, Mud Pond, Carey Lake; pike perch, North Branch Susquehanna River.

York—yellow perch, Kahlers Mill Dam, South Branch Codorus Creek, West Branch Bermudian Creek, Wrightsville Quarry Hole, Conewago Creek, Silver Lake, Broadwater Lake, West Branch Codorus Creek, Little Conewago Creek; suckers, Codorus Creek, Muddy Creek, Conewago Creek, South Branch, Codorus Creek.

HEAVY CATCHES

Warden Dave Dahlgren of Philipsburg, reports good early season fishing in Centre County streams. Prior to reduction of the trout limit to 15 in one day, Harry Havice, Milroy, caught 17 brown trout on the hare's ear fly on Spring Creek. Sixteen nice brook and brown trout were taken on Six Mile Run by August Magnessen of Morrisdale.

FISHING CONTEST ON

Members of the Huntingdon County Game, Fish and Forestry Association are engaged this summer in a fishing contest that has waxed plenty warm. In the brown trout division, Carl Goodman of Water Street was leading, according to most recent advice with a fish measuring 18½ inches in length. Largest brownie to be taken in Huntingdon County waters, prior to the time of this report, measured 22 inches and weighed three pounds, 8 ounces. It was caught by Leroy Brown, West Huntingdon.

Remember, it is warmer to sleep in a snow drift than on the bare ground.



WOLF CREEK WATERSNAKES.

KILLS 44 SNAKES IN ONE DAY HUNT

H. W. Cochenour of Wireton, Westmoreland County, has declared a war to the finish on watersnakes along Wolf Creek, he writes. On May 31, he succeeded in killing 44 of these destructive reptiles. His total kill for two days was 54.

"The boys along Wolf Creek sure can have some sport if they will only get out their guns and go gunning for snakes," he writes. "In my words of expression, the banks of Wolf Creek are lousy with snakes."

CORRECTION

The wrong word can often completely change the meaning of a story and that is precisely what happened in the article concerning Harry Shawkey's splendid fishing record with the barbless hook, which appeared on Page 15 of the June ANGLER. In this instance, the word "retained" at the end of the first line of the second column should have been "returned."

Mr. Shawkey's fine sportsmanship in returning all but 12 out of a total season catch of more than 500 game fish to the water is to be commended as top-notch conservation work along the right lines.

LOYALSOCK BROWNIE

A 24-inch brown trout, weighing four pounds, 5 ounces was caught in Loyalsock Creek recently by "Chalky" Bander of South Williamsport, according to Special Warden H. J. Bressler, Williamsport. For one-half hour, the angler battled his catch before finally landing it. It was caught on the riffles near Kingfisher Lodge.

A PROTEST

Writes Walter W. Dill of Lancaster anent the subject of fishing live bait in bass streams before the season for warm water game species comes in:

"I have noticed so many fishermen using live bait to catch catfish and perch at Safe Harbor Dam, and other places where there are plenty of bass and salmon, that I thought I would write you and the sportsmen about the use of live bait.

"I have seen, and others have seen, hundreds and hundreds of bass and salmon caught by fishermen fishing for catfish by using live bait; and many of the bass and salmon died from taking the hook out.

"As one sport to another, I do not think it right to be allowed to use live bait until bass and salmon are in season.

"I believe if there were a law to stop this habit, we would be doing a big favor to all of the fishermen of Pennsylvania. It would save our live bait from streams that are at present being cleaned out for the use of catching catfish, which as a rule, means they catch more bass and salmon than catfish, and by the time bass and salmon come in it will be hard to get live bait.

"I would like each and every fisherman to think this over, and I believe you will agree with me. Yes, I like to catch catfish and I also like to eat them, but what is the use of using live bait and catching something that you cannot keep, and spoil all of our live bait for that big bass or salmon that we have in mind catching later on?

"Think it over."

MOUNT CARMEL ASSOCIATION HAS ACTIVE MEMBERSHIP

The Mount Carmel Game and Fish Protective Association was organized in 1933 with thirteen members, and there are now four hundred fifty members on the roster and a surprisingly large number of them are active in all lines of endeavor. There are new members being added weekly, they inform the ANGLER.

Many lines of activities are on the agenda of this active member of the state association. There are committees on membership, on law enforcement, on club entertainment in varied lines. Game and fish are distributed by club members and birds are cared for during the winter season. Every member of the club is on the lookout for notorious lawbreakers.

The club recently installed a rifle range in the basement of the clubhouse. It has a fifty-foot range and is being largely used by the riflemen of the club. A quoit alley will be installed in a few weeks, thus giving members a wide field for entertainment, as we now have pool table, card tables, reading room and chess and checkers.

There are a number of regular fishermen in the membership, and the club claims the champion inter-county carp fisherman and champ in size of individual fish, for 1934. It also has as a member one man with an artificial leg who drove more than 3500 miles last year on fishing trips and always with one or more members of the club accompanying him. They developed into sucker experts during October and November last.



NATIVE BROOKIES

When H. S. Smith, President of the United Sportsmen of Pennsylvania and Charles R. Kelchner, Secretary of the Wilkes-Barre Camp of United Sportsmen, both of Forty Fort in Luzerne County, go a-trouting they like to get way back in the timber where those most gloriously colored fish in American waters are to be found—native brook trout.

On May 10, Angler Smith, at right in accompanying photo and Kelchner, shown on left, traveled on foot into the heart of No. 57 Game Lands in Wyoming County, according to Warden Russell Womelsdorf of Kingston. Their total catch consisted of 23

native brookies, from 7 to 11 inches in length, 14 of which are shown in the picture. Waters fished are tributary to Mehoopany Creek.

STARRUCCA RAINBOWS

From Warden Myron Shoemaker of Laceyville comes word that Starrucca Creek has been furnishing fine trout fishing this year. A party of three fishermen, J. G. Kerrick and Ken Kerrick of Camptown and Howard Kerrick of Towanda caught 41 fine trout on this stream in Susquehanna County on June 10. Most of the catch were brownies. A number of rainbows, all over 12 inches in length, were also taken.

"Romance Under the Water"

Editor's Note: The following address was made over the radio recently by Hon. Frank T. Bell, U. S. Commissioner of Fisheries.

THE moral of today's remarks is based on the old story of the country judge who was trying a case. After an eloquent and vigorous prosecution of the case by the District Attorney, the judge announced, "There is no need of going any further, the defendant is plainly guilty." The defense attorney, however, vigorously protested against this irregularity and demanded his right to proceed. His eloquence was so impressive that upon the announcement "that the defense rests," the judge scratched his head and remarked, "Well, I'll be durned, after hearing this fellow, the defendant can't possibly be guilty." I am in somewhat the same fix. Last week I was in attendance at a fishing party in Maine which prompted me to eulogize the fishing virtues of that State in my previous radio remarks. Now, after an angling weekend in Pennsylvania, I am forced to hedge on some of my tributes to Maine and eat crow. The latter diet is particularly objectionable after enjoying a wonderful menu of Pennsylvania trout.

The Honorable Wm. Berlin, Member of Congress from the 28th Pennsylvania District, was the gracious host to a number of his colleagues, including the Speaker of the House of Representatives and to myself.

Mr. Berlin is a prominent conservationist and a member of the House Committee on Conservation of Wild Life Resources.

Those of you who have heard many speeches on conservation matters will undoubtedly recall that the speakers almost invariably refer to the State of Pennsylvania as a model in some phase or aspect of the conservation program. After this visit to Congressman Berlin's district and adjoining sections, I am now able to understand the reasons for the esteem in which conservationists hold the Keystone State. When Pennsylvania thirty or forty years ago started to do things to restore its wild life, it faced a problem which would make the average conservationist throw up his hands and seek more favorable fields for his efforts. The State is highly industrialized, thereby enjoying rich sources of pollution for its streams, and has a teeming population. Its basic industry is mining which means another unending and voluminous pollution of the water sheds. The rich heritage of timber which it originally possessed had been stripped until the mountains were as bare as the bones of a Thanksgiving turkey on its last trip to the icebox. There is an extensive area of rich farming land which means hard sledding for fish and game. In spite of this, what has come to be known as the Pennsylvania plan, has brought back deer, until they are almost a

nuisance, and an abundance of other wild game, also forested mountain slopes and downright good fishing.

We had a chance to sample the cross sections of this conservation blueprint on South Mountain at Mr. Berlin's delightful camp. Speaking first of the angling, a number of the party tried their luck in some of the beautiful mountain streams in that section. Possibly it would add to the interest of these radio remarks if I gave more details regarding the actual catch made by the various dignitaries who were in attendance. A strong sense of loyalty to my host and fellow guests, however, is going to prohibit me from revealing any secrets in this connection. After all, a statesman who has become skilled in the art of luring and annexing votes is not necessarily equally skilled and deft in the art of deceiving, luring and landing an individual far more wary than the voter, namely the speckled trout.

However, Pennsylvania has a showroom, or sample room, for its fishing, in the form of what is known as the Spring Creek Project, which is a natural trout stream that has been improved by all the artifices and devices known to man in order to make it an earthly paradise for trout. Virtually on its banks there has been constructed a hatchery which provides an unending supply of large trout to maintain the stock. The public is urged and invited to try its luck under certain limitations and regulations designed to discourage the fish hog. There is a stretch reserved for women anglers and another area where the greenhorn trout fisherman can exercise his rudimentary talents without too great a danger of snagging the ears, eyes and noses of his colleagues. In fact, if there is another place on the face of this earth where expert or amateur can have greater assurance of hooking a trout than he does at Spring Creek, I have yet to learn the location of this spot. This project was not developed entirely to provide ready-made fishing, but preeminently to demonstrate the various forms of stream improvement which are being carried on throughout the State.

This brings us to another aspect of Pennsylvania's conservation work, notably its use of CCC camps. At no point in the mountainous wooded part of the State will you be very many miles away from one of these establishments. The boys have been put to many useful tasks aside from their primary work of grooming and currying the forests. A visit to one of these camps gave the opportunity for a brief talk to the members and to the public, in which it was possible to bring out the fact that the term "conservation" and the title "Civilian Conservation Corps" means more than the rehabilitation of the forests. It signifies the protection and perpetuation of the creatures whose habitat is the forest, namely fish and game.

Pennsylvania is undoubtedly very much in the picture when it comes to a census of fish and game. Each year some 250,000 individuals loosen the rubber band on their bank roll and acquire a Pennsylvania fishing license. Knowing anglers as I do, I am convinced that they don't do this for sentiment or for any other reason than the belief that there are enough fish in Pennsylvania streams to make it worth while.

These fish are not there by mere chance

or good fortune, but their presence is due to downright hard work upon the part of the Pennsylvania Board of Fish Commissioners, and particularly Mr. Oliver Deibler, the Chairman of this Board. Mr. Deibler is known to fishermen all over the State by a friendly nickname and that is really the best description of his personality. His accomplishments are evident in the streams, lakes and ponds in the State itself.

Pennsylvania does not have the variety of fish that some of the other States have, and is primarily an attraction for the trout fishermen. One of the outstanding artists in trout angling is a Pennsylvanian and a member of its Board of Fish Commissioners. This gentleman is Mr. Kenneth Reid, writer of those interesting articles you have seen in various sportsmen's magazines.

Most of the streams which drain into the upper Susquehanna water shed, particularly the counties bordering on New York State line are famous throughout the east for their brook, brown and rainbow trout. In the southwestern part of the State in the Ohio River drainage are splendid trout streams. Although possibly not so well known, in the northwestern section adjoining Lake Erie, are some lakes and ponds where the warm water fish, such as bass are found. The Pocono Mountains, a comparatively short distance from New York City, attract a throng of trout fishermen from the New York area. Two large artificial lakes, both of which have double-barreled names, too complicated to report over the radio, have been constructed and are being stocked with bass, sunfish, wall-eyed pike and other warm water fish. Furthermore, the wall-eyed pike is so well established in the Susquehanna River that it has acquired, to the distress of the scientists, the local name of Susquehanna salmon.

The maintenance of these fishing waters obviously require the exercise of all of the expedients known to fish culture. The State operates a number of highly efficient hatcheries and distributes a large proportion of the fish produced at them at a legal size. The pressure is too great to permit a year or two delay between the time a fish is planted in Pennsylvania and the time when it reaches frying pan size. The State has made a survey or chart of all of its fishing waters and knows what should be planted in every stream or pool to give the best results. It is now improving its trout streams so as to give a better habitat and environment. It is waging an active campaign to

eliminate pollution and if there ever is a state where this menace to fish life is completely eliminated, Pennsylvania will probably be the first to attain the honor.

My conclusions after a hasty bird's-eye view of the situation in that State are that fish and game are purchasable if the sportsmen want to put up the money. Pennsylvania sportsmen have been willing and glad to do this and the result is they do not have to look with envy at any other section of the country whatever when it comes to a supply of wild life.

Again I must apologize to the sportsmen of other states for my enthusiasm on conditions in Pennsylvania, but after all, they have the goods, and it is only fair to give credit where credit is due.

Hard to Kill

How long will a trout live after it has been taken from the water? Carl Harer of Clarks Summit, according to H. H. Smith, also of Clarks Summit, had an experience recently that just goes to show "you never can tell."

Harer caught an 11 inch brown trout about 5 o'clock in the morning. Placing the fish in his dry creel, he resumed fishing and shortly after 7 A. M. headed for home, arriving there about 7:20. To the amazement of his wife and himself, the trout, placed in a pan of water, revived and by noon was as lively as ever. Despite the fact that it died later, it may have set a limit for trout endurance.

And here's still another from H. H.'s pen, just about proving that bullhead catfish must have the proverbial nine lives of a cat.

"Years ago when I carried an R.F.D., an old man gave me a three pound bullhead one morning as I was passing a lake from which he had just caught it. I drove a model T touring car at the time and it was a hot summer day. Placing the fish in the tool box under the rear seat, I left it there until I got home from the route, a period of perhaps from three to four hours. When I took it out, it was still alive and seemed to revive fully when placed in a tub. It, too, died later."

If your boots are wet, scrape away some hot dirt or sand from under the fire and fill them with it. They will be dry in the morning.

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HERE ^A_N^D THERE IN ANGLERDOM



According to reports from many fishermen and his own observations this season, writes Warden Russell Womelsdorf of Kingston, Luzerne County, heavy stocking of brook and brown trout in northeastern counties is yielding fine results this season. Reports from the famous Lehigh River are very encouraging and brown trout are there in abundance for those who know the when and how of fishing for them.

During March and April heavy catches of suckers were made on the North Branch. Early one morning in March, Dr. Wainwright, Robert Gloeman and Special Fish Warden Guy Shultz, all of Nanticoke, journeyed to the juncture of Bowman's Creek and the North Branch in quest of good sucker fishing. They arrived at their destination at 5:30 A.M. and fished continually until 6:15 P.M. without getting a bite. Then suddenly the suckers started to take it and by 7:15, one hour later, they were on their way home with 21 suckers having a combined weight of 57 pounds.

On Good Friday, Dr. James Rushin, Leonard Rushin, Charles Shultz and Special Warden Guy Shultz of Nanticoke drove to Bowman's Creek intending to fish for trout. On their arrival, they found the stream too high for good trout fishing and decided to fish for suckers instead. They started fishing at the mouth of the creek at four in the afternoon and quit at seven with 36 fine suckers.

Fishing in Huntingdon Creek, Luzerne County, early this season, Harold Laubach of Berwick caught a brown trout measuring 20 inches in length. He was using an anglerworm at the time.

C. P. Lewis and Walt Doty of Berwick had a combined catch of 15 brook and brown trout, 7 to 11 inches in length, in Huntingdon Creek early in the season.

Anthony and Peter Mamola and John Terpack of Miners Mills made a combined catch of 23 brook trout and three brown trout, from 7 to 11 inches in length, in Tobyhanna Creek on May 4.

The big brown trout in Bowmans Creek are minus one of the outstanding members of their congregation, according to word received from Warden Myron Shoemaker of Laceyville. Clyde Brinser of Johnson City, N. Y., caught the big fellow, a brownie measuring 23 inches in length.

If you doubt the fighting ability of a good size trout that is hooked on a fin, consult Harry Weaver of Wilkes-Barre. Fishing a No. 16 fly in Bowman's Creek, Harry had

Snake-Eating Trout

Robert L. Plarr and Walter L. Laskowski, respectively president and vice-president of the Lehigh County Fish and Game Protective Association, vouch for the truth of this believe-it-or-not fish story. Mr. Plarr, who is manager of Dorney Park near Allentown, recently saw one of the big trout in a pond which he maintains as one of the attractions of the park, acting strangely and upon netting it out, he found it had partly swallowed a water snake, and was having a mighty struggle with the reptile. Mr. Plarr drew the snake from the mouth of the trout and threw the fish, a fourteen-inch back into the water. The snake was killed and left lying on the ground for a day or two until Mr. Laskowski came along to investigate a story that Mr. Plarr had been seeing snakes of some kind. The dead reptile was still lying on the ground and Mr. Laskowski, who was checking up on the story, threw it back into the pond, when, lo and behold, another trout promptly grabbed it. Laskowski hustled about the park for a camera but by the time he came back the trout had spit out the snake.

Which is the end of the story except that it does not settle the question as to why a trout will try to eat such unusual bait.

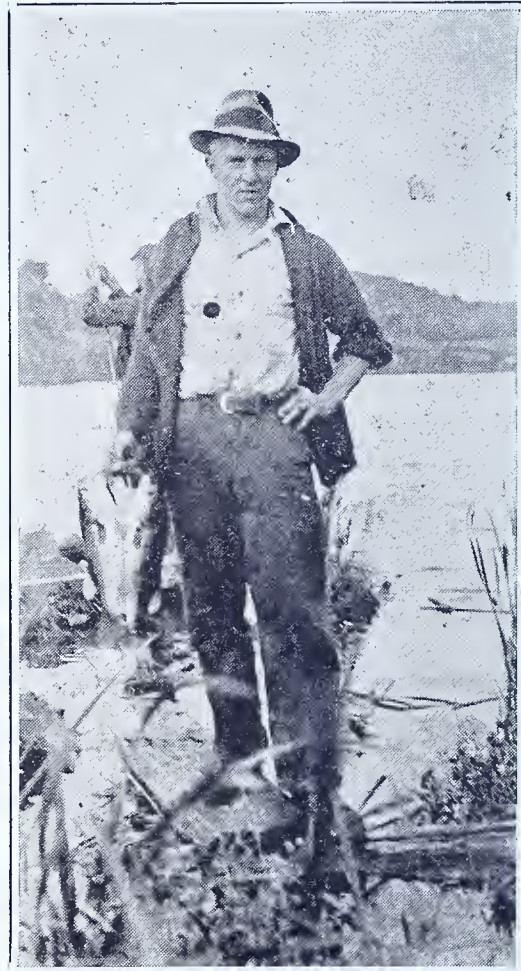
a rise and hooked a 19½ inch brownie under one of the pectoral fins. The brownie was finally landed after a hard battle.

The Right Hand Branch of Young Woman's Creek yielded a fine creel of brownies to the fly fishing skill of A. G. Keller of Gleasonston recently, according to Warden George Cross of Hammersley Fork. The largest brownie measured 16½ inches, one was 15½ inches and three were 12 inches each in length.

A brown trout taken on Fishing Creek by Clyde Minnock of Salona, according to Cross, measured 19 inches in length. It was caught on a minnow.

Kettle Creek on the North Tier has provided better trout fishing this year than it has in the past ten years, according to Cross.

Schuylkill County has been right in the limelight when it comes to good catches of big brownies, writes Warden Anthony Lech of Shenandoah. Monroe Houser of Barnesville caught a 21-inch brownie in Locust Creek that weighed 2¾ pounds. Dr. John J. Bonavage of Mahanoy City made a catch of eight brownies in the Lehigh River on the green drake. They ranged in size from



PETER STANCHIS, SCRANTON, WITH TWO LARGEMOUTH BASS, 17 AND 18 INCHES, FROM FORD'S POND, LACKAWANNA COUNTY.

12 to 16 inches. Ed Schmeltzer and Geizer Kramer of Pottsville took fine creels of brook trout from Bear Creek at Roeder's Station.

A brown trout 21 inches in length was taken in Jordan Creek near Allentown on June 3, reports Warden Joel Young. It was caught by Francis Brum of Allentown.

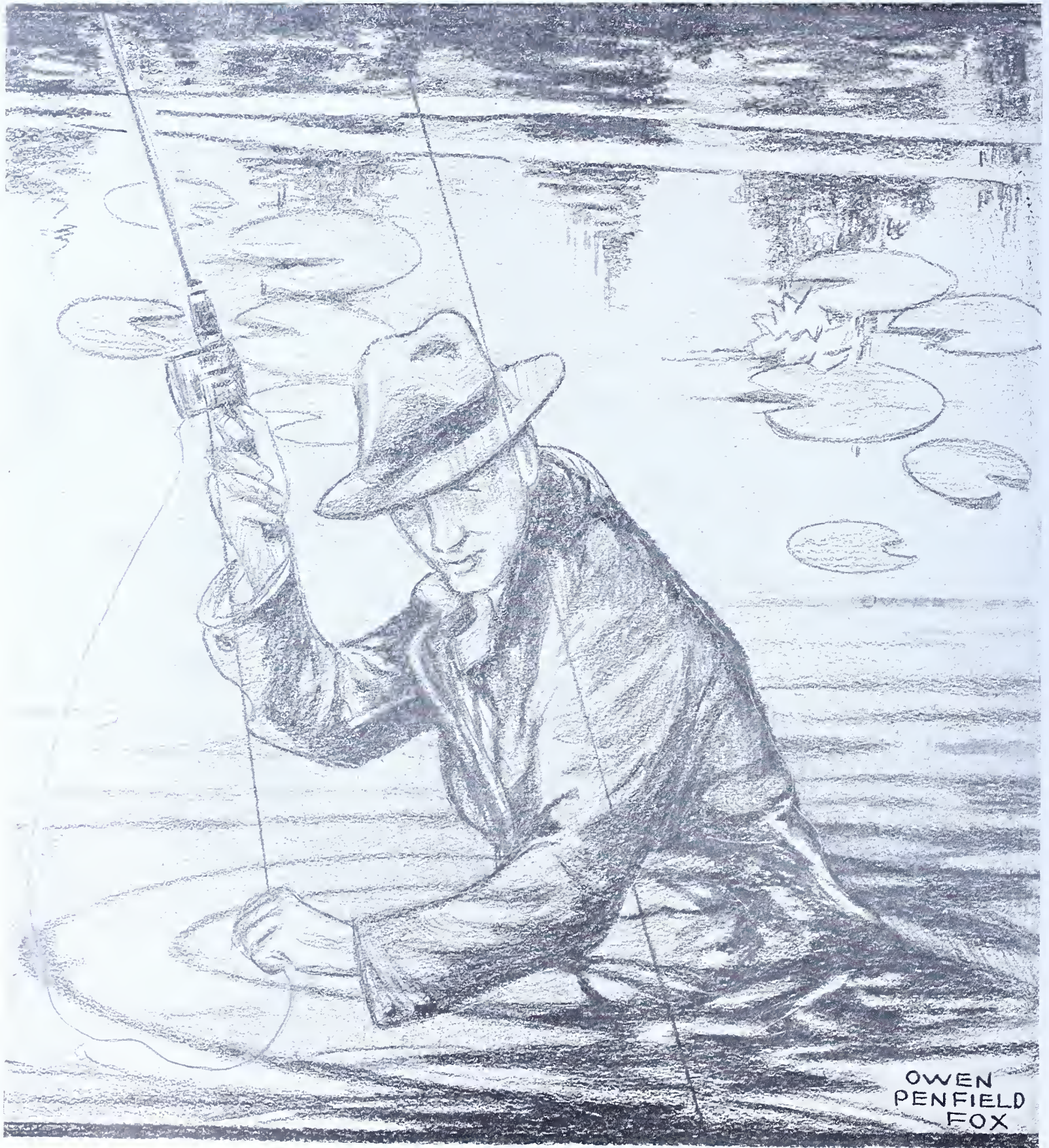
Six brownies taken from Spring Creek, Warren County, by Don Finley of Warren, measured from 13 to 17 inches in length, reports Warden R. C. Bailey of Youngsville.

The way to settle an argument as to who owns a fish when one fisherman catches it on another's line is to give it to a mutual friend. And that's what two boy anglers, Dave Yoder and Sam Flock of Williamsport did recently when this system yielded a 15-inch brook trout from Mountain Beach resort near the Lumber City. They presented the catch to Sidney Milnor, superintendent of their school, according to Honorable S. C. Castner, Member of the Board of Game Commissioners.



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EDITORIAL

Varied Fishing

Pennsylvania, perhaps to a greater extent than any other state, stresses varied stream stocking. In other words, we plant not only the popularly termed game fishes, brook, brown and rainbow trout, smallmouth and largemouth bass and wall-eyed pike, the panfishes—bluegill sunfish, yellow perch and bullhead catfish, but minnows, to serve as additional forage for game fishes in areas that have been depleted during the season. This varied stocking program serves a two-fold purpose. First, it aids in striking a proper balance in our fishing waters, and second, it affords our various types of fishermen more opportunity to indulge in the particular phase of angling they like.

A brief analysis of how this varied stocking works should be timely. As I have said before repeatedly, an abundance of forage is essential in any body of water for successful game fish stocking. Introduction of black bass, for instance, to a small pond or lake in which native species such as the sunfish, yellow perch, catfish and minnows are abundant, invariably is attended by a marked increase in number of the voracious bass. Their inroads on the other species become increasingly heavy until the introduced bass have reached a saturation point. Then, the food no longer sufficient to meet their needs, the bass turn upon their own kind and in turn decrease in number. Poor fishing must be the inevitable result in such an area. For this reason, we make it a point to stock bass only in larger water areas having sufficient range, and at the same time continue stocking with less vo-

racious species to aid in preserving a proper balance.

Just how vital balanced stocking is to the future of fishing in Pennsylvania has been amply demonstrated at Lake Wallenpaupack in Pike and Wayne counties. When the dam forming this lake was completed in 1926, it was closed for a period of two years to fishing. To this virgin body of water were introduced forage fishes, panfishes and game species including smallmouth and largemouth bass, pickerel and wall-eyed pike. Every care was exerted not to introduce any foreign species believed detrimental. Since its opening to the public in 1928, each season has marked finer fishing on this great body of water. Last year's climax resulted in a catch of wall-eyed pike so amazing that old time fishermen could recall few incidents in comparison. Apparently this season will continue the record fish yield of all species that annually attracts fishermen from this and other states. Wallenpaupack's charm rests in the fact that not only may bass, wall-eyes and pickerel be taken by veteran anglers, but also that those who like fishing for the gamey sunfish, yellow perch and accomodating catfish are usually not disappointed in their fishing efforts.

So much for the fish cultural end of balanced stocking. Let us now consider the varied groups of anglers who comprise our Pennsylvania fishing population.

First, we have the fishermen who find their sport principally in fishing for panfish, suckers, catfish and carp. This group today forms perhaps the bulk of all our anglers. There is charm in still fishing, and certainly it affords wonderful opportunity for meditation and study of nature along

a fishing stream. To meet the requirements of this group, we stocked last year bullhead catfish, suckers, bluegill sunfish, catfish and yellow perch in great numbers. Still fishermen are constantly gaining converts to their ranks. Additional thousands are finding real sport in carp fishing, and I feel safe in predicting that when the thrills to be found in taking carp are general knowledge, our carp fishermen will increase an hundred-fold.

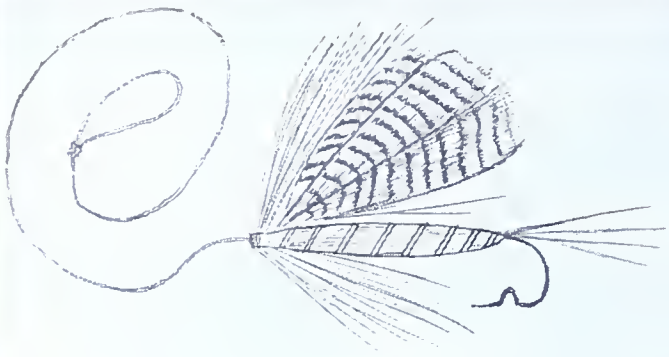
In the second large group of fishermen, we find those who delight in fishing for the game fishes, trout, bass, wall-eyed pike and pickerel. This group in turn is subdivided into live bait fishermen, bait casters and fly fishermen. To them, the two big calendar dates of the year are April 15, opening of the trout season, and July 1, when bass season opens. To furnish good fishing for those who prefer game fish angling, the Board has constantly increased its output of bass, legal size trout, fingerling trout, and wall-eyed pike.

A survey of the fishing picture in Pennsylvania convinces one that all of these forms of the sport are interdependent on each other. More panfish and so-called food fish, such as the sucker, provide just that much additional forage upon which voracious species such as the bass and pickerel prey, as well as providing more sport for the still fisherman.

In other words, varied stocking as well as widely divergent forms of angling must eventually work to the betterment of Keystone State angling as a whole.



Commissioner of Fisheries.



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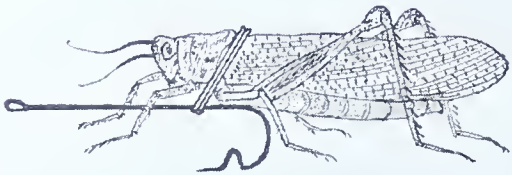
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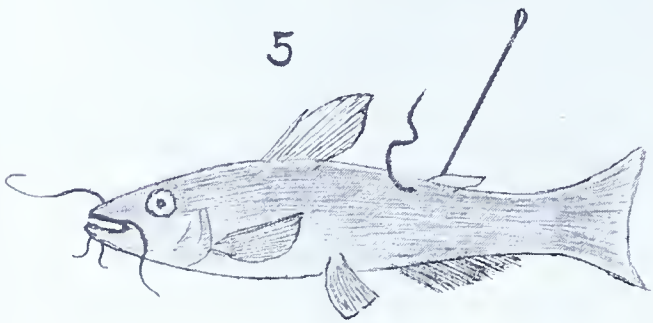
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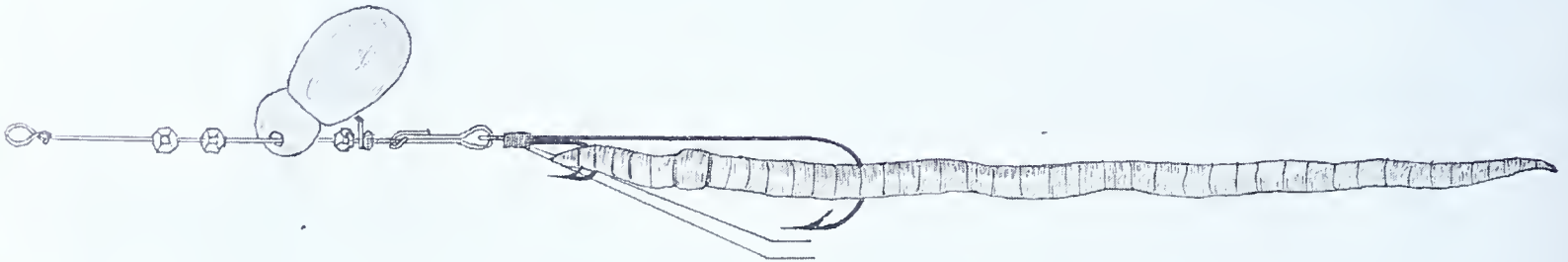
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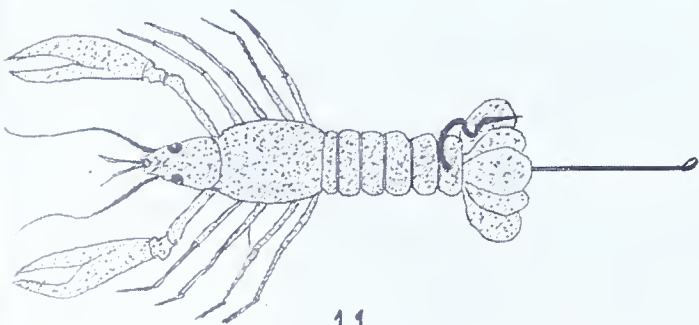
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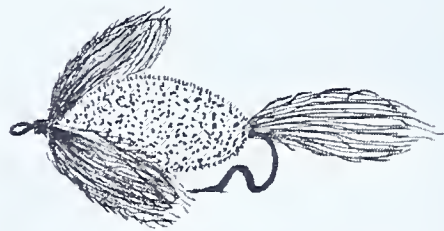
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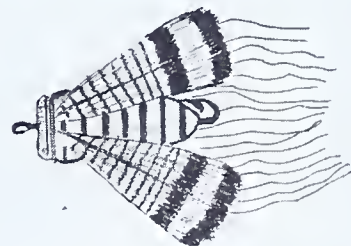
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Wetzel 6-35

Bass Baits and Lures

By CHAS. M. WETZEL

THE smallmouth bass, *Micropterus dolomieu*, and its close relative *Micropterus salmoides*, the largemouth, are probably our gamest fresh water fishes; and their capture on light tackle offers such a succession of thrills and disappointments, that after the first experience, one is usually a bass convert for the remainder of life.

The largemouth's environment centers around the larger lakes and ponds, especially those fringed with lily pad shore lines and having muddy weedy bottoms; while the smallmouth prefers the swifter moving creeks and rivers. Dark deep shadowy pools are favorite lurking places during the heat of day, and places where the even flow of the current is broken by huge rocks, are among the best of spots for fishing. As necessary as the ruffled pond weed (*Potamogeton*) is to the pickerel (commonly called pike) so are rocks to the welfare of the smallmouth.

After reading the fine articles in the ANGLER on the biology of the bass, I well realize my inability in trying to add anything more to a subject that has been so adequately covered—so I will content myself with describing a variety of lures and baits, necessary adjuncts in legitimately taking *Micropterus* from his native habitat.

I have not included plugs—a separate subject—nor the rapidly disappearing lamprey eel, which an old angling friend on the Delaware stoutly affirms to be one of the best of baits. How well I remember when, as a child, I was allowed to accompany my father over to the creek to procure bait for setting outlines. With a shovel we dug the lamprey eels out of the mud at the stream's edge. Everyone used them, for as eel bait they had no equal—but now like the wild pigeons, they are gone! Only one section of our state—the upper Delaware, I believe—has them any more, and it would be interesting to read in the ANGLER whether this statement is correct.

Bass like the larger baits and insects. Yesterday, the opening day of the season, I caught one on a fly in the Neshaminy Creek, that had a five-inch sucker in its stomach. At this time of the year the larger Ephemeridae or mayflies, principally *Hexagenia*, are gone and it is seldom that the bass take the smaller species. The large stone flies Perlidae and a few of the Trichoptera or Caddis flies, namely *Stenophylax* and *Limnephilus* are over the water almost throughout the season; and these together with the winged helgramite and various bugs and beetles that fall into the water, form the principal insect food of the bass. From the above, it is apparent, that close imitation of natural insects is not nearly so important as in trout fishing. What is necessary is a gaudy creation—one that arouses the bass' fury and causes him to see "red." Exceptions to this are the black gnat, a very somber appearing fly and a few others, equally successful.

The manner in which a lure is worked through the water is probably as important as the lure itself. Bass are naturally pugnacious and will savagely strike at anything

that presents an appearance of trying to escape. The successful bass fisherman gives considerable thought to this outstanding and dominant trait. And now to the baits and lures.

No. 1. The Wet Fly

Two of these flies, point and dropper, attached to a six foot leader approximately thirty inches apart, are excellent for night fishing. The Yellow Sally, Black Gnat, Baltimore, Silver Doctor, Red Ibis, Montreal, and Paramachene Belle are all good, but everyone has his preference. Strike at the slightest pull on the line, for often the bass takes the fly very lightly. The description of a good fly I tie myself is given herewith: Body, yellow wool ribbed with silver tinsel; hackle, red and white; wing, teal, breast feathers.

No. 2. The Tandem Spinner and Fly Combination

One of the most effective lures for fishing rocky and turbulent water, is the fly and spinner combination. Fished at dusk and after nightfall in shallow water, not over five feet deep, it is one of the most productive of all bass lures or baits. If you have never tried it before, a pleasant surprise is in store for you when fished under the above conditions. On dark cloudy days, or in pools deeply shadowed by overhanging foliage, it is almost as good as when fished in the evening. Spinners are inexpensive and can be obtained in either the gold or silver finish. I always carry a number of both and use the silver finished ones; when it is darkest. It is primarily a fly rod lure, but take my advice and don't use your pet fly rod with it, for in a short time it will take on a permanent set due to casting. The spinners are furnished with a clip, whereby the ordinary ringed bass fly can be attached. This fly can be constructed at home or procured with the spinner at almost any sporting goods store. Cast it out over the water, allow it to sink a moment, then retrieve it with a uniform pull, or alternating with short abrupt jerks, depending on the conditions. You will not be in doubt when a bass strikes, for they hit it with an awful "wallop."

No. 3. The Bucktail Streamer

This fly works equally as well on bass as on brown trout. It is another fly rod lure and should be retrieved similar to the fly and spinner combination, perhaps with more abrupt jerks, as the bass take it for a wounded minnow. Ordinarily a split shot sinker or lead attached to the leader should be used, to cause it to sink. I am partial to the description of the one given below: Body, black wool ribbed with silver tinsel; bucktail mixed white and brown with jungle cock feathers on the sides.

No. 4. The Feather Minnow

A fly rod lure like the bucktail that represents an injured minnow. Body, red chenille ribbed with silver tinsel and with four long Plymouth Rock hackles tied on over the back. Thread is formed by close turns

of the tying silk, shellacked, and then with enamel the eye is painted on.

No. 5. The Grasshopper

For attaching this live bait to the hook, I generally use a light rubber band as it keeps the insect alive. If a field where the grasshoppers abound is convenient, two men can in a short time catch sufficient bait to last for a few days by the following method. Procure a piece of cheesecloth a yard wide and about twelve feet long. Fasten a pole to each end and with net stretched taut, run with it through the field. The haul will prove surprising.

No. 6. The Helgramite

Known among entomologists as *Corydalis cornuta* and among fishermen as the helgramite, dobson and a host of other names,—this bait ranks ace high for bass. It is found in shallow water under the stones of swift moving streams and the hook is attached under the "collar," as shown. It is used in still fishing and should be kept on the move as it has an annoying habit of crawling under the first stone it encounters. As good as this bait is, it should not be used.

Due to the absence of weeds in our waters on which the great majority of insects, crustaceans and mollusca exist, our streams are sorely lacking in aquatic life and incapable of supporting the fish therein. It is bad enough if we destroy the food supply of our fish for the coming generation, but far worse is the practice of allowing some people to continue in the nefarious practice of commercializing on it, even to shipping bait out of the state. It is only a matter of time until the public becomes cognizant of our natural resources and will as a whole rise up and denounce such practices. I never use live bait any more, that is, what is found in our streams. The fly in the hands of skilled fishermen is just as effective and probably more so. Save the helgramite, for we do not want it to go the way of the lamprey eel.

No. 7. The Stone Catfish

A live bait equally as good as the helgramite, and another that we should not use. At night and when the water is muddy, this small fish deserts its home under the rocks in the stream bed and roams around freely in search of food. It is a pest that the worm fisherman has to contend with when fishing for catfish and eels, especially when the water has been roily for some time. During the day and in clear water it is procured in the following manner. Select a fairly heavy iron bar or pipe and bring it down smartly on the flat shaped rocks in the shallow water. Quickly overturn the stone and catch the momentarily stunned catfish as it floats downstream. Caution should be exercised in handling them as the spines on the pectoral fins are capable of inflicting a painful wound or "sting." They are hooked either through the lips or immediately in the rear of the dorsal fin above the backbone. It is a tough bait and will survive a long time if handled correctly. Like the helgramite, the same care should be ex-

exercised in keeping it off the bottom away from the rocks.

No. 8. The Frog

It is not a pleasant sight to see a frog hooked through the lips, the method that is generally employed. A harness that is much more humane is on the market and can be procured for a small sum. It has an added advantage of holding the frog uninjured, thereby prolonging its life. This bait appears the most successful along the shore around the pond lilies.

When a bass first seizes live bait, it makes a long swift run, taking out line at an alarming rate. Then follows a rest period during which time the bass mulls around and swallows the bait, prior to starting out on the second run. Now on the second run, (according to the old timers) he should be given the "butt", or in other words "hooked."

No. 9. The June Bug Spinner and Worm

This is one of the most successful of the trolling rigs and with it I have caught some large bass and wall-eyes. It is quite commonly used on Canadian waters and on Lake Wallenpaupack, where it ranks high as a wall-eye lure. The large nightcrawlers are commonly collected on the lawn after a heavy rain, "spotting" them with a flashlight. In the absence of rain the garden hose gives equally satisfactory results. I have kept them throughout the summer in a large earthen crock filled with sphagnum moss, feeding them coffee grounds and ground up hard boiled eggs. Wash the moss occasionally and if the crock is kept in a dark cool place, you will have night crawlers throughout the summer.

No. 11. The Crawfish

This is one of the higher crustaceans, sometimes called a crab by fresh water anglers. Crustaceans are distinguished from insects by the possession of two pairs of antennae and three pairs of legs. The water flea Daphnia, is one of the more minute crustaceans.

The hook is attached as shown and some anglers pinch off the "nippers," before casting it out over the water. The same method should be used as in fishing the stone catfish and the helgramite.

No. 12. The Bucktail Bass Bug

This is a surface lure that I tie myself. It is constructed entirely of bucktail, the body clipped to the shape shown in the sketch. The lure is entirely dyed a jet black and my father has used it very successfully on various Illinois lakes.

No. 13. The Trix Oreno

I am not getting paid for advertising this lure, but it will catch fish. I remove the small wobbler on bend of hook and substitute for it a piece of pork rind.

No. 14. The Bass Bug

The body of this lure is constructed of a cork cylinder and a special hook, with a projecting piece, is necessary to prevent the body from turning. I have had fair success with this lure on the Juniata River. Like the bucktail bass bug, it is cast out on the water and twitched to represent the struggling of a bug or beetle as it falls on the water. It is a thrill comparable to none when a bass explodes under one of the surface lures, but unfortunately our Pennsylvania bass are not such active surface feeders as are some in other localities. Body, yellow cork, ribbed with red silk; hackle, bucktail, dyed red, wings, wood duck.

"Lose a Hook and Spare a Bass"

By CHARLES A. FRENCH

Member, Board of Fish Commissioners

"BOY, oh boy, but didn't that little fellow put up a wonderful scrap? Too bad he isn't a half inch longer, for then he would have been a 'keeper'. Ah shucks! Look here, he has swallowed the bait and that means he is hooked down in the stomach. Well, too bad, old boy, but since you are a 'gonner' anyway the hook may as well be saved before you're thrown back into the stream."

How often has not the same expression or thought gone through the mind of a bass fisherman as he proceeded with the operation of tearing the hook from the stomach of an undersized bass, an act that can mean nothing but eventual death if it is not actually killed by the cruel extraction. No doubt, every bass fisherman who uses bait has gone through this same experience, time after time. Unfortunately, a great number of bass fishermen are under the erroneous impression that once the bass has swallowed the hook it is doomed to die and under those conditions they may as well extract the hook. Careful study has proven that a large percentage of bass will live if the line or leader is cut close to the mouth of the fish and no attempt is made to withdraw the swallowed hook.

Last summer the writer hooked a four-pound smallmouth, using helgramite as the lure. When this fish struck it was realized that it was a big one and sufficient time was given it to swallow the bait. The setting of the hook was the signal for a battle and what a battle it was. For almost a half hour it continued, ending only when the leader parted just as it was being drawn toward the landing net. Sometime later, fishing the same hole, another terrific strike was had, this time the quarry being landed. Much to the surprise of the writer it was discovered to be the same bass, hooked on the previous trip. About two feet of the lost leader still extended from its mouth. Later examination disclosed that the hook had embedded itself in the stomach, the chemical action of the gastric juices having already begun its work of deterioration. Extracted, it was easily broken between the thumb and

forefinger. This was conclusive proof that bass will not die as the result of being hooked in the stomach so long as it is left to nature to disgorge it in the natural manner.

Misguided fishermen, who give no thought to this as well as the cutting off of the line or leader but feel they must recover their hook are responsible for thousands of fish being killed in this manner, yet when one considers the insignificant cost of a hook when compared with the value of a seven or eight inch bass it will readily be conceived that it would pay an hundredfold to lose a hook and save a bass.

With the legislative body denying the Board of Fish Commissioners the power to regulate the size and creel limits it should be the ambition of every fisherman to be more careful of his catches if good fishing is to be enjoyed in Pennsylvania.

A certain group of fishermen who have fished together in northwestern Pennsylvania for a number of years have set amongst themselves a number of rules as to size and number of bass which may be taken and "extracting hooks" from under-sized fish is absolutely "taboo." No bass under ten inches are kept and five is their limit. This group has fished the Allegheny at a place not frequented by many anglers and by carefully observing these rules they were enabled to enjoy their favorite sport on every visit. About a year ago a number of cottages were built in this section. The newcomers would proudly display their limit catches which, unfortunately, did not include dozens of smaller bass, also killed, with the result that today it is practically impossible to catch a bass in this section. They have been completely wiped out through hoggishness, ignorance and indifference.

The Board of Fish Commissioners is doing everything within their power to create more and better fishing. In this the fisherman can play a vital part by conserving the number of fish caught and killed, raising the size limit on his own initiative and by all means sacrificing the hook which he may find imbedded in the stomach of an undersized specimen.

VISIONS

Did you ever lie down, "On a warm Summer Night"

Your bait, and your tackle "All set,"

*Just lie there "and vision" a tug on your line
Like as one you have never had yet.*

*You become so engrossed with the thought
of a fight*

To test every bit of your skill

*You think of your pole, and you question
your line*

And wonder "If ever—You will"

*You become so excited, the sleep you invited
Is simply "just passing you by"*

*Leaving you in a heat, it has gone in retreat
So you roll, and you toss, and you sigh.*

ALLEN CARTWRIGHT

Lightning Bolt Kills Trout

When lightning struck a tree on one of the shore banks of a trout-retaining pond at the Reynoldsdale, Bedford County, hatchery of the Fish Commission, the shock killed 45 brook trout averaging 10 inches in length. This is one of the most rare occurrences on record, for seldom do electric storms cause havoc with fish life.

Everything considered, the toll in the big pond taken by the lightning was not heavy, for 7,000 trout of similar size to those killed were swimming in it when the bolt struck.



J. HANSELL FRENCH, SECRETARY OF AGRICULTURE (RIGHT), TALKS OVER THE SPRING CREEK FISHING WITH COMMISSIONER DEIBLER. THOSE TWO FINE TROUT ATTEST SECRETARY FRENCH'S FISHING ABILITY.

BIG PICKEREL

Warden J. Albert Johnson of Bradford, McKean County, reports good pickerel fishing in the Sinnemahoning River between Emporium and Driftwood and in Pickerel Pond, near Cameron. The best catch reported to date was that made by Jackson Turner of St. Marys. His catch of six pickerel measured from 22 to 25 inches in length.

CCC camps in that section of the state

have been doing some intensive stream improvement work. Under the supervision of J. S. Turner, 38 dams have been constructed in Hunts Run and Whitehead Run.

JERMYN ANGLERS KEEN FOR FLY FISHING

Fly fishing, not only for trout, but for bass, pickerel and other game fish has increased amazingly in Pennsylvania this season. Just to illustrate how enthusiastically our anglers are backing this sportsmanlike fishing method, we'll refer you to that live-wire organization, The Jermyn Dry Fly Rod Club. Clyde Coleman, a member of the club, by the way, caught a 20-inch smallmouth bass weighing 3½ pounds recently on a fly-rod surface lure in Newton Lake.

Now, concerning Coleman, who caught the big bass just mentioned, a fellow angler and member of The Jermyn Dry Fly Rod Club, Floyd J. Waters writes:

"Mr. Coleman was interested in dry fly fishing late last season, and previous to his catch on July 9th he had taken seven fine bass from Little Round Pond. While this 20-inch smallmouth was light for the length, he was a beautiful specimen, and Coleman believes that it took him about 15 minutes to land him. He was alone in the boat and it was getting quite dark. This fish was hooked on the first cast on a deer hair dry fly, better known as a bass bug, but a surface lure under all conditions.

"Five years ago when I started dry fly fishing for bass I was the only one in town or nearby vicinity that I can recall. Now our club of ten members are all enthusiastic about this type of sport, and we have a

Bass "Patrol"

From Warden Charles Long of East Waterford, Juniata County, comes word of an interesting episode concerning a watersnake and two bass. He writes:

"While patrolling Tuscarora Creek some time ago, I observed an unusual incident. A watersnake appeared beside a large stone in the stream and instantly two smallmouth bass came into the picture, one about 10 inches, the other 12 inches in length. The two bass, one on each side of the reptile, piloted it through the water for quite a time. When it stopped, the bass would slowly circle about it, then when it started swimming again, they would resume their posts of duty.

"At no time did the snake make an attempt to attack the fish. Just why they were so interested in the snake, I cannot say unless they had a spawning bed close to the scene. Everything was well with the watersnake until the bass strolled far enough away from it to permit me to start my .38 working. It is now in the snake here-after."

dozen or more fellows seeking information and asking to be taken out for a start."

TAKE PLENTY OF FLIES FOR LEHIGH BROWNIES

Walter Williams of White Haven is known as one of the most successful fishermen in that section in taking trout from the Lehigh River and can furnish many an interesting tale and much sound advice.

He has taken many large trout and recommends that anglers take plenty of flies when going to the Lehigh to try their skill.

One evening in June, he felt a little too sure of himself and started for the Lehigh in the vicinity of the Powder Mill, which is a short distance above White Haven, with only four flies.

The big brownies were feeding and it was only a matter of minutes before he was on his way back home for a new supply of flies.

He was using two flies at one time and in two successive casts he connected with monster trout, each of which started up the river and kept on going, taking two flies along.

Tommy Gets 'Em

When Mrs. Joseph Jones, wife of the Nanticoke hardware dealer, wants a fish supper, she sends their son, Tommy, 13, fishing. She doesn't rely on Joe, writes Warden Russell Womelsdorf, Kingston.

Joe walked from his cottage down to the shore of Lake Nnangola on the afternoon of July 11 and fished for an hour, returning with a story that the fish were not hitting.

Young Tommy, remarking that there was still 10 minutes remaining before supper time, took his tackle, went down to the lake and came back in 15 minutes with a four and one-half pound large-mouth.

He was late for supper, he said, because it took him more than 10 minutes to land the fish. In 1934, he caught a five-pound bass at Nnangola.



FISHING IS FAVORITE SPORT FOR LARRY EARLE, SON OF THE GOVERNOR. HERE HE EXHIBITS TWO FINE TROUT HE LANDED.

Fario, the Invader

Life Sketch of a Brown Trout



SALMO Fario lolled soddently in the recesses of the deep undercut bank that was his lair. For three years sluggishness had characterized this mammoth brown trout. His bulky, 30-inch length, thick, somewhat rounded girth and undershot jaws gave the impression of a clumsy outgrowth from the race of brown trout. More than ten pounds he weighed, but there was nothing suggestive of those lithe, flashing shadows in other sections of the stream, the smaller browns, in his movements, save power. In coloration, he was dark, almost black, blending well with the shadows in which he lurked.

The home pool of Fario harbored few other trout. This was puzzling to many anglers, for in appearance it was ideal. Directly upstream from the undercut bank, a swift current surged against the bank, then formed a deep eddy and widened into tree shaded shallows twenty feet downstream. A hatch of caddis flies was just emerging over the pool, when Fario moved quietly to the brink of his lair. Two other brown trout, both fish of about 12-inch length, were rising eagerly to these flies. For some reason, instinct, perhaps, the smaller brownies seemed to avoid the undercut bank.

Finally, however, in a moment of rashness, one of the feeding fish flashed to the surface only a few feet from Fario's lair. As it arched to take the fly, a great shadow rose from the recesses of the undercut bank. In the mighty swirl of the giant trout, the feeding brown was caught between elongated, grinding jaws, and head shaking slightly the big fish again settled into its retreat. For possibly five minutes those powerful jaws clamped the smaller fish, until the tail of the victim barely twitched. Then Fario leisurely turned his prey and swallowed it. A brief drama, this, explaining better than any words just why Fario's home pool harbored few other trout. For

Fario, the mammoth brownie, was a confirmed cannibal, no less dangerous to other trout in the stream than he had been three years before. To be sure, his ponderous movements were lacking now in savage suppleness that once enabled him to overtake other trout as they passed his lair, his sight no longer was attuned to catching the slightest glint or movement that denoted the presence of prey, but to counter these defects, the years had given him greater cunning in fulfilling his body needs. Timing his strike to offset disadvantage of bulk and poor sight made the great brownie one of the most deadly trout predators in the stream.

Just before dawn next day, a thunderstorm lashed furiously through the valley drained by the stream in which Fario lived. In an incredibly short time, the clear water was supplanted by brownish silt draining in from a number of small tributaries, and plowed fields along the course of the stream.

Fario moved into the current, for at times like this, nightcrawlers, those big earthworms that he fed on with relish, were washed from the banks. Constantly on the alert for larger food, "a mouthful" was the way old Abner put it in describing the feeding whims of the big browns, Fario passed up few opportunities in that category. And Abner, who had lost two hooks to the mammoth fish in two seasons, was right at the scene of action with daybreak.

This time, however, he was equipped with tackle heavy enough to resist the weighty rushes of Fario. Carefully he played out into the current the nightcrawler and heavy shanked hook on which it was writhing and it was swept on the first try to Fario.

The strike that followed was deliberate, a slow, almost imperceptible straightening of the line. Then, after a lapse of five minutes, Abner struck. The bulk that was Fario moved deliberately under the bank, as he had so often done, relying upon his great weight on the tight line to wear it through

on the overhanging ledge and snap it. But this one time, it didn't work. The hook, lodged deep in his gullet, drove him to different tactics. Rolling, twisting about, he moved back and forth in the pool. Once, toward the end of the battle that lasted nearly an hour, he made a desperate lunge toward a sunken log at the lower extremity of the shallows, there to twist about it and snap the line, but he was turned in time. Heavy tackle and the skill of an old fisherman finally won the verdict, and of real benefit to a beautiful trout stream was the passing of Fario from its course.

* * *

In covering the life-span of Fario, its beginning in a tiny spring-fed tributary ten years before is interesting. Even at that time, the race of Fario were preempting this great limestone stream, slowly but surely crowding out the native brook trout or charrs. Each succeeding autumn showed a marked decrease in number of the charrs as they ascended to the headwaters on their spawning run. In contrast to the dwindling brook trout population was the increase in number of the browns, when usually two weeks before the brookies moved upstream in mid-November, the invaders accomplished their spawning mission.

The sire of Fario, a graceful 22-inch male fish had hovered over a shallow pebble bar for possibly 24 hours, preparing the nest for his mate, of similar length but much heavier girth, on that eventful autumn day. This year, spawning conditions were ideal, gradual lowering of stream temperature having precluded much of the fighting among the male brown trout that occurred when unseasonably warm weather retarded reproduction. Fario's parents presented an impressive picture as they hovered over the pebble bar during the spawning act, for in this rich limestone water, their coloration, accentuated at spawning time but unusually brilliant during the entire year, presented a medley of shades. Blending with the deep brown undertone of back and sides verging on the dorsal surfaces were vermillion red dots and rich black spots, many of them X-shaped. A delicate pinkish or rose hue occurred below the brown, and the ventral surfaces were rich yellow, as were the ventral, pectoral and anal fins.

Engaged in the spawning act, male and female swirled about over the silt-clear pebble bed, the male discharging milt over the eggs deposited by his mate. Not long after the spawning had been completed, Fario's parents returned to the main stream, and the straggling remnants of a once-ruling clan, the brook trout, succeeded them over spawning beds in the little tributary.

Fario emerged from the egg one warm day in early April, the following spring, a clumsy mite of life laden with prominent yolk sac. In this, the fry stage, he lay with his brothers and sisters for two weeks on nature's incubator, the pebble bed, and, like Fontinalis, the brook trout, he gradually gained in strength and activity, finding an abundance of minute organisms in the limestone water upon which to feed.



ONE OF THE FEEDING FISH FLASHED TO THE SURFACE.

Hardiness was an heritage of this tiny brown trout. Many centuries before, his kind had lured anglers to the shores of England's chalk streams. Izaak Walton, patron saint of fishermen, had immortalized Fario's species in his treatise, "The Compleat Angler." The gentle prioress, Dame Juliana Berners, declared her fondness for the brown trout in her "Treatyse of Fysshynge," date 1496, in the following manner: "The troughte for by cause he is a right deyntous fysshe and a right fervente byter****From Apryll till Septembre ye troughte lepythe; theune angle to him."

In Germany, too, the game qualities of Fario's kind were lauded and appreciated, and from Germany in 1885 came the eggs from which his American born ancestors were hatched at the Corry hatchery in Erie County. Bach forelle, as he was known in Germany, became German brown trout and Von Behr trout (for Von Behr of Germany sent the first shipment of eggs to this country) to Pennsylvania fishermen.

The growth of Fario during the first year of his life was extremely slow as compared with that of his rival for the food supply in the stream, the brook trout. Not until he had attained a length of better than six inches did he start developing the later amazing length and girth he was to achieve. Like the young brook trout, his food in the fingerling stage consisted chiefly of insect life, small crustaceans and worms washed into the stream. In striking he was swift and sure, and greedily gorged himself on all available forage.

The second year found him dropping into larger water, where that season he achieved a length of nine inches. The period of greatest activity covering three succeeding years followed. By the time he had achieved a length of 12 inches, Fario displayed another characteristic of his race. Minnows, dace and shiners swarmed in this limestone stream and upon this almost illimitable food supply the clan of Fario waxed heavy in girth. To a much greater extent did they feed upon the forage fishes than the brook

trout. In consequence, their greater body needs, coincident with greater size, were amply fulfilled. Forage, the ultimate answer to growth of trout or other game fishes in any stream, swarmed in the home waters of Fario, the invader.

At 12-inches a racy-appearing fish with just a suggestive fullness of body portending mighty girth, Fario by the time he had achieved 15 inches was an unusually bulky male fish. His head, well formed with graceful jaws, did not offer the slightest hint of those long hooked mandibles that were to characterize him in later life.

Until the last three years of his life, Fario was an important factor in the spawning of the brown trout, but it is to be hinted that during his last years, while he instinctively accompanied the upstream migration, he took little if any part in reproduction.

The mammoth brown trout during only one stage of the season turned surface feeder. That was when the hordes of Green

Drakes or shad flies cluttered the water over the sunken ledge. Then he gorged himself to satiety, his bulk rolling lazily to the surface, great maw sucking the fragile insects beneath.

After he had achieved a length of 20-inches, Fario the invader definitely slipped from the game fish picture. In England, where intensive stream management prevails on most trout waters, removal of brown trout after they have passed 18 inches in length is stressed. Rarely, after passing that size, are they regarded as good "fly" fish.

It is apparent to those interested in trout stream welfare that the presence of only a few trout of Fario's size in any stream is detrimental to its trout population as a whole. Here the bait fisherman, with his heavier equipment and suitable natural lures, for example old Abner, whom we mentioned in the beginning of this sketch, serves an admirable purpose in assuring natural balance through removal of giant trout after they have passed the stages where they are capable of furnishing good sport.

The brown trout problem, if problem it is, for few today can justly criticize the brownie as a fighting fish, centers in mammoth fish like Fario, the invader.

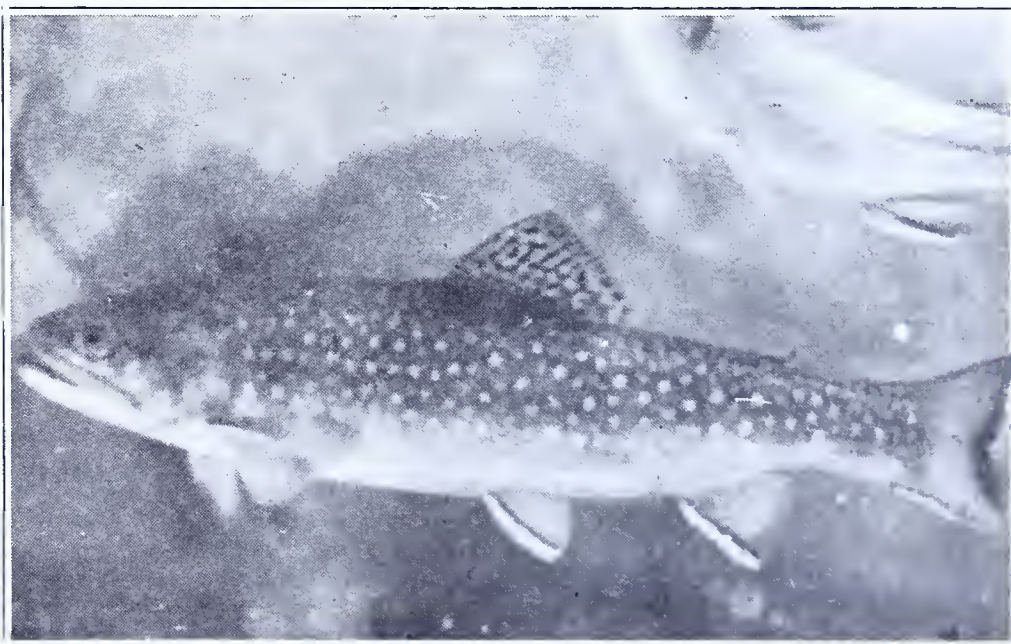
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"Fario, The Invader" is the third of a series of articles by your editor on the life habits of outstanding game fishes in Pennsylvania waters.

FIVE-POUNDER

Listed with the big largemouth bass caught in Pennsylvania waters this year, will be the Fourth of July catch made by George W. Scott of Coraopolis in a little pond only 20 miles distant from Pittsburgh.

Fishing in Clinton Pond near Clinton on the Lincoln Highway, Scott hooked and landed a bass measuring 22 inches in length, with a girth of 15 inches, that weighed five pounds. The bass, he reports, was a female and apparently had spawned recently.



SLOWLY, BUT SURELY, THE BROWN TROUT WERE CROWDING OUT THE NATIVE BROOK TROUT OR CHARRS.

Balanced Stocking of Trout Streams

OR

Fingerling versus Large Trout

By **KENNETH A. REID**
Member, Board of Fish Commissioners

FOR a number of years, the Pennsylvania Fish Commission stocked only legal size trout, that is, fish that range from 6 to 12 inches, and a limited number of larger ones. These fish were planted in streams of greatly varying type and size, and the beneficial results from these plantings have likewise varied considerably.

It has become increasingly apparent that the exclusive use of large trout for planting purposes was not the complete answer to the stocking program. The cost of raising a ten-inch fish is several times more than that of raising a 3 or 4-inch fish, and this factor definitely limited the number of large trout that could be raised and released in the streams.

Our annual production of these legal size fish has averaged about 1,000,000, although in 1934 it jumped up to over 1,300,000. While this seems like a tremendous number of fish, if we divide it by the total number of fishermen in the state, each fisherman's quota per season would be only three of these planted fish. Dividing it by the estimated number of trout fishermen, the individual fisherman's share would be not more than six to ten. Figured from the dollars and cents standpoint, this latter figure represents the number of these fish that his individual license would pay for raising. It is interesting to note that the present daily creel limit represents about 3 times the number of trout that an individual license would pay for raising.

With the number of large trout that can be raised definitely limited by the Board's income, it is obvious that if additional streams are stocked with these large trout, there will be fewer fish available for the streams that are now being stocked, so that the fishermen in their requests should seriously consider the suitability of the waters so that the best results will be obtained.

Pennsylvania trout streams vary from little spring rivulets with very limited food, cover, and water area to splendid big streams large enough to float a canoe. A few hundred yards of latter type stream will provide food and cover for more and larger trout than the entire length of many of the small brooks. Not only in the number of fish per mile, but in the size as well, there is a very marked difference between the typical large and the typical small stream.

In order to provide as wide distribution as possible, and to provide fishing conveniently for the greatest number of fishermen, the Board has stocked many of these smaller streams that in the line of several years experience would seem to represent a considerable waste of fish, that might have produced better results if placed in larger waters. I have personally fished a number of these streams as far back as twenty-five years ago, when the fish in them might well be considered native trout. In numbers,



"BIG TROUT WATER"

they were very plentifully supplied, and it was a simple matter to take more than the present daily creel limit. On the other hand, the size of these fish ranged from 5 inches or less to 7½ inches, with only occasional fish above this figure. Nine inch trout were the exception, and when a fish over ten inches was creeled, it was something to talk about.

In Nature's scheme of things, there is a place for everything but we can't have everything in the same place. In these small streams, Nature had provided "food and lodging" suitable only for small trout. In planting large trout in these streams, I believe that we have disregarded the natural limitations of the stream in providing food and cover for fish of this size with the result that shortly after planting, their natural inclination is to wander down stream in search of larger waters in keeping with their own size. Often these fish find their way into polluted waters or into other waters that are unsuitable with a resulting loss to the fishermen.

A further problem in the planting of large trout in small streams, and one that can not lightly be overlooked is the temptation that it throws in the way of the violator, whose object is only to get a mess of fish by methods fair or foul. I have often said that the planting of a truckload of these large trout in a small brook, particularly in low water, is like waving a red flag in a bull's face, and I am confident that many of them have been taken out by illegal methods before they had a chance to get scattered

and before the rod and line fisherman had a chance to enjoy any sport. When these same trout are placed in large waters, they are much safer from depredations of this sort with the result that they are there for the rod and line fisherman to catch.

Realizing these facts, the Board began last year raising large numbers of fingerlings as an auxiliary to their stocking program. These were planted by sportsmen's organizations, largely in small tributaries of headwaters which were not on the approved list for large trout. This year again we will have an increased number of fingerling trout for distribution and, in this distribution, the fishermen themselves meet the truck at a central point and take the fish in their own cars to the different streams to be stocked in their section. Not only has this plan made possible the stocking of many small streams that have not previously been stocked, but it has augmented the supply in many of the larger streams to which these small ones are tributary, for as these trout attain larger size, they often move down into the larger streams.

If the discretionary power bill recently introduced into the Legislature is passed, it will enable the Board to get much better results from its fingerling stocking program by exerting some control over fishing in many of these small tributaries, which should be preserved as fish sanctuaries on the principle that the Game Commission has so successfully operated its game refuges in connection with surrounding public hunting grounds. In the meantime the fishermen can do much to improve their own fishing by



"LITTLE TROUT WATER"

voluntarily refraining from fishing these small tributaries and headwaters where the average fish will be under, rather than over the legal limit.

But the possibilities of this fingerling stocking program are not limited to the very small streams that have not previously been on the approved stocking list. Very conservatively, there are at least two or three hundred streams now on the approved list for large trout that I sincerely believe would produce better results for the fishermen if they were taken off this approved list and stocked with a much larger number of fingerlings. This would permit the Board to place several hundred thousand large trout, that are now being planted in these small streams with poor to indifferent results, into the large streams that can nicely accommodate many more fish than we have been able to stock.

If we will concentrate the stocking of large trout in the major trout streams that have ample accommodations for them and stock the small streams with fingerlings intelligently planted, I am confident that the results will be improved fishing for the rod and line fisherman, which after all is the object that we are all working toward. These fingerling trout, measuring from two to four inches in length, should be carefully distributed in the upper reaches of streams and in tributaries where one com-

monly finds trout of this size in nature—never in the larger waters where one would expect to catch trout of a size well above the legal limit. As they get larger, they will move down into larger water, but if you put these little fish there to begin with, few will live to attain a growth in keeping with their surroundings because they will be preyed upon by the larger fish already in the water. Application of the common sense principle of placing little fish in "little fish water," and big fish in "big fish water," will insure a measure of success that is not obtainable with hit or miss methods of stocking.

We appeal to sportsmen's organizations throughout Pennsylvania to give this matter of reclassification of trout streams serious thought, and after doing so, to send in their recommendations to the Board, listing the streams now on the approved list for stocking with large trout, which they think could be stocked to better advantage with fingerlings, bearing in mind the fact that in doing so they will be greatly increasing the number of large trout available for planting in the larger streams of their section. Let our object be not the blind planting of the greatest number of fish for our own pet streams, but the intelligent planting of the right size fish for each type of stream so that it will produce the most fish and the most sport for our fishermen.

IZAIAK WALTON CHAPTERS PLAN FIELD DAY EVENTS

Two southeastern Pennsylvania chapters of the Izaak Walton League of America are planning big field days to be held during the next month, it has been announced. The Delaware County Chapter of the Izaak Walton League will hold its eighth annual field day on September 7 in Ridley Creek Valley above Media. A comprehensive program including pistol shooting by the State Police under the direction of Lieutenant Bair of the State Police, nationally known ballistics expert, civilian shoots, both large and small bore, trap shooting, high power rifle shooting at rising bear and running deer targets, fly and bait casting, has been

arranged. This field day smatters a little of the state convention of the League and ranks as an outstanding outdoor event in Delaware County. Over 100 prizes will be awarded.

The field day of the Southern Chester County Chapter of the League, having a similar program, will be held at the Kaolin Quarry near Avondale on August 27. This chapter has done outstanding work in stream improvement in White Clay Creek. John Evans, Jr., of Avondale is president of the chapter, and Berton O. Smith, Kennett Square, is the secretary.

The Avon Archers Association will present archery exhibits and contests at both meets.



SETH SAYS

I been a bullfrog fish-in'. Now, ain't thet a joke, mebbe ye'll say, but I sure ketched me some rarin' big bullyrums t'other afternoon. For mebbe two weeks, Sary the wife hed been hintin' thet frog legs'd be most mighty welcome fer the table, so Jerry Tims 'n' me we got our heads together an' made out ter go down ter the backwater.

We rigged our cane poles with about a foot o' good stout twine, an' fastened on treble hooks covered with red flannel. Ef there's a better frog bait 'n' this, I don't know 'bout it. Well, sir, Jerry he takes one side o' the backwater, and I takes t'other. There's a slopin' bank undercut at the waterline, an' the ol' greenbacks like ter sit back in the shade. Ef a feller goes along easy like, he kin often locate 'em. Me, I ginerally dangles the hook along close ter the water edge, bein' careful to step easy.

Right at the edge o' a clump of grass, I spots a heck of a big frog. First try as I drops the hook front o' him he hopped at it, but I missed him. Second time, he takes it fer fair, an' thet frog woulda weighed close ter a pound and a half. After each o' us hed ketched six big frogs we called it a day.

In skinnin' the bullyrums, we crack 'em smart over the back o' the head, holdin' 'em by the legs an' swingin' 'em agin a post. Then we cut the skin all the way round back o' the round spots thet is the ears, an' strip off the skin. We cook the whole frog, fer the front legs an' body o' a good size bullyrum hes considerable meat it'd be a crime ter waste.



A. S. KREIDER, JR., FISHING ON MOUNTAIN CREEK, ABOUT FIVE MILES ABOVE PINE GROVE FURNACE.

Driftwood Stream

By DONALD J. ANDERSON

ON a delightful summer's day, when fluffy white clouds, standing out like little islands in the seas, glided smoothly toward the distant east, I suggested to one of my friends that we go fishing.

"Fishing!" he echoed savagely. "The streams around here haven't got any fish." He was one of the fellows, who, though they distrust the men who stock our streams, are either too indolent or uncooperative to aid in stocking and see that their opinion is incorrect.

"I know a good stream—about nineteen miles from here." I knew he disliked trout fishing and didn't mention the famous little Lehigh, which flowed only a few miles beyond.

"I don't believe you." Then, after a moment's silence, "Where is the stream?"

"Nineteen miles south—the Tohickon Creek."

"Tohickon? I've heard that name before."

"It has a beautiful name. In the Delaware Indian language it means 'Driftwood Stream' or —"

"Oh, hang the name!... You say it does have fish?... Sure?"

"I fished it often enough to know. It has bass, pickerel, eels, shiners, bluegills—"

"Bluegills? Many?"

"The creek is famous for its large bluegills. I get a good creel practically every time I go there."

"Well, O. K. I'll go buy a license and fetch you with my car. Dig bait meanwhile. And if this is a wild goose chase—"

The creek was reached several hours later. I was very much disappointed. During the dry summer months the good fishing holes became nearly entirely blanketed with dark green moss several inches thick—without exaggeration. This, of course, is due to the sluggish character of the stream. This condition, contrary to my expectations, now prevailed. The stream lay a silent, moss-covered valley with gray, pointed boulders reaching the height of the rims. On either side stretched the shaded, jungle-like Haycocks mountains, whose lofty trees threw lengthening shadows over the valley.

My friend was infuriated. "Is—is—" he waved his arm toward the slumbering Tohickon, "—this the stream? Did you bring me nineteen miles to—to this blamed mud-hole?"

"Wait, give the stream a chance. It has pickerel and—"

"I won't even fish in this mud-hole. You'll get all tangled up in the moss."

"Fish along the rocks; the moss isn't gathered there yet."

"Fish along the rocks!" he echoed sarcastically.

I put my tackle together in low spirits. Not much to expect from a stream in this condition. "Funny," I said, "the last time I fished here the creek was all over the valleys. We caught two creelsful of eels and catfish and—"

"Aw, nuts!"

I pulled on my boots, and now, fully prepared to fish, waded down the stream in quest of blue-gills. I emptied five nice fat ones from alongside some pond lilies. Not



TOHICKON CREEK

as exciting as trying for pickerel or bass, but I had to make the most of the situation.

My friend, however, not acquainted with the favorite fish haunts, did not fare so well. He caught one tiny blue-gill, too small to keep. He went back to the machine and returned in a few minutes with a casting rod and spinner.

"You fool," I said, "The water's too low for that."

"Well, if I don't catch a bass or pickerel in ten minutes I'm going home."

Patience is essential in the making of a good fisherman. Surely, here was an impatient fellow. He whizzed the spinner past my ear; it splashed into the water. Bam! and something hit it. I was startled; so was my friend. The spinner flew across the water and he reeled in the line. He brought along a tremendous bunch of moss.

"What a fish that was!" I exclaimed.

"Confounded moss!" my friend said. "A guy can't fish decent. I'm going home. Darn mud hole has no fish anyway."

I knew now why he wanted to go home. He wanted the gang to have a good laugh on me. I choked to hold back a series of terrible maledictions. "We can fish a while yet..."

I waded back toward the car when he did not answer. The heavy moss gathered on my boots and made progress slow. The wilderness along the banks was nearly impenetrable, especially when a long fishing rod had to be carried.

When he arrived home late in the after-

noon a neighbor was proudly exhibiting a dish-pan full of fish.

My friend's eyes extended. "Whew, what a catch!"

"Two dandy pickerel, three bass and twenty-five bluegills," returned the neighbor, smiling with satisfaction.

"Boy, I'd willingly go to a place where it has fish like that," my friend declared, his eyes glued on the fat, varicolored sunfish and slim graceful pickerel. "Where did you get them?"

"Oh, I was down to the Tohickon a few hours yesterday. The water was so low and stagnant it smelled bad at some places—but the fish sure did bite!"

My friend flushed. He knew the worm had turned, that his long speech about our streams not having any fish was not going to be made; and that I, not he, was going to tell the tale of the day's trip over and over again to the rest of the fellows.

DIGEST OF NEW FISHING LAWS

For the information of Pennsylvania fishermen, the following laws were passed by the 1935 session of the Legislature and signed by the Governor. The important amendments follow, including dates when they become effective.

HOUSE BILLS

No. 181—This bill extends the line for eel chutes in North Branch Susquehanna River from below the boundary line of the city of Pittston and the Duryea borough line.—Our officer tells us this makes very little change in present law. Effective date, September 1, 1935.

No. 927—Provides for sealing of abandoned bituminous coal mines, cost to be paid from appropriation to Department of Mines or from allotments made by Relief or Public Works authorities. Effective May 7, 1935.

No. 1093—Provides license date motor boat shall be June 1st instead of January 1st. Effective May 7, 1935.

No. 1476—Reducing number of trout from twenty to FIFTEEN. Effective May 7, 1935.

No. 1683—Provides for issuing permits by County Treasurers at cost of fifteen cents to all hunters and fishermen permitting carrying of fire arms, while hunting or fishing, or on way to or from. Effective September 1, 1935.

No. 1806—Monthly reports County Treasurers to Department of Revenue. Effective June 1, 1935.

No. 1885—Concurrent legislation has been passed by the Legislatures of both New York and Pennsylvania permitting holders of Pennsylvania fishing licenses to fish in New York's portion of the Delaware River without securing a New York license, providing they do not fish from, or land, on the New York shore. The same thing applies to New York fishermen. Effective June 10, 1935.

No. 2117—Provides wherever any stream is stocked with trout during trout season Board may close such stream or part thereof for a period of five days.

No. 2175—Provides penalty of \$10 for each offense under Section 1 of the frog law. This will provide a \$10 fine for taking frogs out of season, which was not provided for under old law. Effective May 29, 1935.

No. 2216—Provides for closing of streams, lakes, dams, ponds or parts thereof,

for nursery waters. This is much needed legislation and gives Board authority to close as many waters as it desires. Old act provided for only one water in each county. Effective September 1, 1935.

Important Amendments to Fish Code

No. 2319—The term fish bait includes crawfish, known as crayfish, crabs, crane flies, waterworms, mussels and helgramites.

Gives Board power to revoke license for one year for first offense, or two or more years for second offense.

Prohibits the taking of fish by snatch-fishing, foul-hooking, or snag-fishing, or the taking or fishing for fish with hook or hooks, baited or otherwise, attached to rod or line or other device for the taking of, or fishing for, fish with any device whatsoever which may be used to capture any fish by engaging such device in to or with any part of the body of a fish.—This is a most important amendment as it eliminates the serious question each year as to what is a legal fishing device for taking suckers, etc.

Provides for out line in Lake Erie at \$2.00 each.

Prohibits sale of fish bait or bait fish taken from public waters of the Commonwealth.

Provides naturalized foreign-born residents must produce their naturalization papers before securing a license.

Provides where license certificate is lost or destroyed, duplicate to be secured from County Treasurer or Department of Revenue, by making affidavit, also provides for making a button when one is lost. However, where both button and license are lost, new license must be purchased.

Provides for tourist's fishing license for nonresidents, for a period of three days upon the payment of a fee of \$1.50.

Provides a twelve-year age limit for non-residents.

Provides for issuing of not more than fifty special fishing permits or complimentary license in each year to unnaturalized foreign-born persons or distinguished non-residents. Effective September 1, 1935.

No. 2477—Provides for a penalty of \$10 for destruction of any dam, deflector, retard, or similar device which has been placed in a stream by the Board of Fish Commissioners, or its agents. Effective May 29, 1935.

SENATE BILL

No. 1354—This bill is reciprocal with New York and New Jersey as they have already passed similar legislation. Previously seasons, size limits, etc., did not agree and there was no creel limit on game fish. The amendments are as follows:

DELAWARE RIVER LAW

Above and Below Trenton Falls

TROUT

April 15 to July 31, inc.

Size—6 inches

Number—twenty (combined species)

LARGE & SMALL MOUTH BASS

June 15 to Dec. 1, inc.

Size—9 inches

Number—ten—in all

BASS

Strawberry or calico, rock or red-eye or goggle-eye, white, crappie

June 15 to Dec. 1, inc.

Size—6 inches

Number—Rock Bass—twenty Calico & Crappie—twenty—in all

PIKE PERCH

June 15 to Dec. 1, inc.

Size—12 inches

Number—Ten

PIKE

June 15 to Dec. 1, inc.

Size—12 inches

Number—Ten

PICKEREL

June 15 to Dec. 1, inc.

Size—12 inches

Number—Ten

Between Pennsylvania and New York
TROUT—Brook, Brown, Rainbow, Steelhead and Red Throat—

April 15 to Aug. 31

Size—6 inches

Number—25 combined species

BASS—Large or Small mouth

July 1 to Nov. 30

Size—10 inches

Number—Fifteen

PIKE PERCH OR WALL-EYED PIKE

May 10 to March 1

Size—12 inches

Number—Fifteen

Also provides for taking yellow and white perch from the game fish list and allows their taking at any time of the year.

It will allow the taking of suckers with seines from October 15 to March 15.

It clarifies the law on use of nets above or below mouth of any river, creek, or stream emptying into the Delaware.

It limits the number of rods and lines for taking food fish to three.

Effective September 1, 1935.

FISHIN'

By DON FINLEY

*The birds are singin', soft and sweet,
The sun is hot, you've got sore feet.
How they're bitin'—some trout, many a bug,
They chew your ears 'n mess up your mug.
But, a trout is risin' in you pool,
You callate he's yours, you cussed fool.
The line goes sailin' through the breeze,
A snag on the backcast—blankety, blank
those trees.
Another cast towards the rising trout,
The fly is gobbled, he's hooked in the snout,
You give him a chance, you play him well,
He's gone with a splash, AIN'T FISHIN'
H - - I?
After all, your feet still burn, and the bugs
do bite.
But h - - I, if they didn't things wouldn't
seem right.*

KILLS WATERSNAKES

Watersnakes in the vicinity of East Waterford, Juniata County, have been leading a precarious existence this summer owing to the activities of J. J. Patterson, retired merchant, according to Warden C. V. Long. Living near the juncture of Horse Valley Run, a trout stream and Tuscarora Creek, smallmouth bass and pickerel water, Mr. Patterson has had abundant opportunity to thin down the number of snakes in that section.

Recently he encountered four of the reptiles at one time, and succeeded in killing three of them with a garden hoe. The shotgun also has been effective in diminishing the number of snakes. So plentiful had these predators become that they completely destroyed a school of fall fish and trout in a pool on the run which, prior to this year, Mr. Patterson had been feeding.

Now, Jimmy, Mr. Patterson's seven-year old son has also declared war on the watersnakes, for he blames them for taking many of the sunfish from his favorite fishing pool on Tuscarora Creek.



HUNTINGDON SPORTSMEN HOLD GET-TOGETHER AT SPRING CREEK PROJECT. TOP ROW, LEFT TO RIGHT—ROSS METZ, GAME COMMISSION. ALEX SWEIGART, "ANGLER" EDITOR, FRED MARKS, SIMPSON RODGERS, JAKE KISELY, TED SIMPSON, SAM METZ (WITH TROUT) AND MAURICE BANKER.

"Acres of Diamonds" for City Fishermen

By RICHARD S. BOND

A FAMOUS preacher of my city, who passed to his reward a few years ago, popularized a lecture called "Acres of Diamonds." The reading of this lecture is supposed to be of great assistance to the tired business man, the manufacturer with red ink on his ledger, and the lawyer with dust on his law books.

I suggest it to my fellow Waltonites who, like me, are unfortunate enough to live in a large city, far removed from the best haunts of trout, bass, pickerel, and pike. After the reading, they should oil their reels, string their lines, and try their luck in the city lake, the bathing pool, or perhaps in some little creek where bare-foot boys angle for goldfish. After my own experience, I would not be surprised at anything that might happen.

Without boasting, I claim to be the champion non-catcher of Pocono trout in the State. I can catch them in Nova Scotia, Connecticut, New Brunswick.....but the trout of the Pocono streams have undoubtedly placed my name upon their black list. I can motor three hundred miles and come home with one, two or six. I can motor half the distance and do as well. I can

visit a new stream, so far removed from civilization that the native youths are still hiding from the Hessians, with fishermen who have caught their limit there, a week before, and return with a mess of huckleberries or a flat tire. My only consolation is that these experts who lure me to the new haunts, also return empty handed. The blacklisting of yours truly by Pocono trout applies to any and all who dare to fish in my company.

I can go equipped with everything from a pale evening dun to a midge; from a Royal Coachman to a Sherry Spinner; or from the Governor to the Cowdung—and on that particular day every trout in the stream is either on vacation or leaping for the Fore and Aft Fly—which I left at home.

The good lady who packs my lunch always buys lamb chops for the evening meal. She knows before I start the motor that I will bring home a creel of trailing arbutus, field daisies, or a paper bag of wild strawberries. When the creel does contain trout, she uses her reading glasses to inspect them, and always weeps at the orphans.

So I claim to be the champion non-trout

catcher of the Pocono Mountains—Paradise Valley, South Sterling, Broadhead, Little Lehigh, Bushkill, or what have you. Some day, due to my pugnaciousness, I may break the jinx—but at present I stand without an equal.

Is it any wonder, then, that one afternoon last summer, I agreed to accompany a friend of mine to his home on the banks of a little creek that is barely beyond our city line? It is the Neshaminy. The trout season was over, but why should I get blacklisted by the bass of the Wallenpaupack, by invading their territory and using more good gas? Why not go to my own back yard and catch sunfish or chub? I could get a sunburn, at least,—and perhaps an eel or two. "No real fisherman," I said, "would give the creek a second thought—at least not where it burbles along the edge of Philadelphia, with its banks lined with fishing urchins, and its pools pulsating with plump mermaids."

But I went anyway. The books all told me to take a casting rod or a heavy fly rod. I had heard a lot about minnows, plugs, worms, and bass bugs. But after a season of trout fishing in the Poconos, why should I do as others did—it didn't work.



UNAMI CREEK, MONTGOMERY COUNTY, ONE OF THE FINE WARM WATER STREAMS ACCESSIBLE TO PHILADELPHIA FISHERMEN.

PHOTO BY LA MAR MUMBAR.

HELEN SCHNABEL SCORES AT SPRING CREEK



This picture just serves to bear out that old saying "Like father, like daughter." Hon. Dan. R. Schnabel, known by sportsmen all over the state as "Uncle Dan" is shown inspecting a 15¾ inch brook trout caught by his charming daughter, Helen Schnabel, at Spring Creek.

Miss Schnabel is an enthusiastic disciple of Izaak Walton, fly fishing and casting for game fish particularly appealing to her. Judging by "Uncle Dan's" expression in the picture he's as proud of Helen's catch as she is, and reason enough, we'll say.

TROUT FEATURE JUNE STOCKING

Brook, brown and rainbow trout comprised the bulk of June stream stocking from the Fish Commission's hatcheries. Of 456,997 fish of the various species planted, 37,173 were brown trout from 8 to 14 inches in length, 37,000 brown trout fingerlings, 50,720 brook trout from 7 to 8 inches, 328,840 brook trout fingerlings, 1,984 rainbow trout from 8 to 12 inches, 250 adult bullhead catfish, 368 adult bluegill sunfish and 662 adult yellow perch.

The following streams in the various counties were stocked:

Allegheny—catfish, North Park Dam; sunfish, North Park Dam; yellow perch, North Park Dam.

Beaver—brown trout, Big Traverse Creek.

Bedford—brown trout, Yellow Creek, Raystown Branch of the Juniata River.

Blair—brown trout, Piney Creek; brook trout, Blairs Gap Run, Big Fill Run.

Bucks—brown trout, Pine Run; brook trout, Tinicum Creek, Beaver Run.

Cambria—brook trout, South Fork Little Conemaugh River.

Carbon—brown trout, Pohopoco Creek, Wild Creek; brook trout, Big Bear Creek, Drake Creek; rainbow trout, Quakake Creek.

Centre—brown trout, Spring Creek, Pine Creek, Elk Creek, Little Moshannon Creek, Logan Branch; brook trout, Six Mile Creek, Cold Stream, Rapid Run; rainbow trout, Spring Creek.

Chester—brown trout, White Clay Creek, Middle Branch White Clay Creek.

Clarion—brook trout, Tome Run.

Clearfield—brown trout, Sugar Camp Run, Lick Run; brook trout, Curry Run, East Branch Mahoning Creek, Mountain Run, Mosquito Creek, South Witmer Run.

Clinton—brown trout, Right Branch Young Woman's Creek.

Columbia—brown trout, Fishing Creek.

Cumberland—brown trout, Letort Springs Run.

Delaware—brown trout, Ridley Creek.

Elk—brown trout, Big Mill Creek; brook trout, Bear Creek, East Branch Clarion River, Hoffman Run, Maxwell Run, Mohan Run, Island Run, Hicks Run, Kersey Run, Bear Run, Crooked Creek, Medix Run, Wolfe Lick Run, Spring Creek.

Erie—brook trout, Beaver Run.

Fayette—brown trout, Big Meadow Run; brook trout, Back Creek.

Forest—brook trout, The Branch of North Salmon Creek, Tubbs Run, Coon Creek, Salmon Creek.

Fulton—brook trout, South Brush Creek.

Huntingdon—brook trout, Sadler Creek.

Jefferson—brown trout, Clear Creek, North Fork Red Bank Creek; brook trout, Mill Creek, Clear Run.

Lawrence—brook trout, Deer Creek, Big Run, Jameson or Elliotts Run, Taylor Run, Big Run.

Lehigh—brown trout, Little Lehigh River; brook trout, Cedar Creek.

Luzerne—rainbow trout, Lehigh River.

Lycoming—brown trout, Cedar Run, Loyalsoek Creek, Muncy Creek; brook trout, Upper Pine Bottom.

McKean—brook trout, West Branch of Tuneneguent Creek, Sugar Run, Chappel Fork of Kinzua Creek, Kinzua Creek; brown trout, Potato Creek.

Mifflin—brown trout, Strodes Run.

Monroe—brown trout, Middle Branch Brodheads Creek, Brodheads Creek, Pohopoco Creek; brook trout, Aquashicola Creek, Cherry Creek.

Northampton—brown trout, Hokendauqua Creek; brook trout, Saucon Creek.

Potter—brown trout, Pine Creek, First Fork Sinnemahoning Creek; brook trout, Genesee Fork of Pine Creek, South Branch Oswayo Creek, Dry Run, Eleven Mile Creek, Fishing Creek, Middle Branch Genesee River, Ludington Branch Genesee River, Cushing Creek, Nine Mile Creek, East Fork of First Fork of Sinnemahoning Creek, East Branch Fishing Creek, West Branch Genesee River, West Branch Fishing Creek, Trout Brook, Kettle Creek, Cross Forks South Fork of First Fork of Sinnemahoning Creek, Genesee Fork Pine Creek, Left Hand Branch Dingmans Run.

Schuylkill—brook trout, Locust Creek.

Somerset—brown trout, Laurel Hill Creek, Clear Shade Creek, Wills Creek.

Sullivan—brook trout, Elk Creek, Elk Lick Run.

Tioga—brown trout, Cedar Run.

Union—brown trout, White Deer Hole Creek, North Branch Buffalo Creek; brook trout, Beaver Run, Black Run, Buffalo Creek.

Warren—brown trout, Tionesta Creek.

Don't get into treacherous water with hip boots on.

So under some friendly pieces of tar paper, we found a host of lively crickets—for the little perforated jars. In the riffles we secured helgramites for our bait boxes—with a couple of crawfish for luck. Cigars, a couple of sandwiches, rubber boots AND CORKS. Back to the primitive we went.

Exactly seventeen and one-half miles from my front lawn we found a pool that looked promising. Below it ran friendly ripples from which I took a sunny of generous size—proving immediately that my cricket must entice the bass very promptly if at all.

Above the ripples, at the edge of the pool, a 9½ inch crappie presented himself to me—and then we settled down on the stony shore with our cigars and light trout rods, for a smoke and chat.

An hour went by with nothing but sunfish nibbles on the crickets. Occasionally a particularly savage one would perform a surgical operation on a helgramite and force us to re-bait.

Then the surface of the water was broken by a tiny splash. Evidently a bass, but not of legal size. Another splash from the same fish, or his twin brother—and then a larger splash that looked promising.

I swung my line from the water and cast it on the spot where this last splash had occurred. Something struck. My light rod bent like a bow. A little reeling, and a largemouth, between ten and eleven inches, was on the shore.

The sun was setting. The helgramites and crickets were working. I tore thirty years from my life, unearthed a cork from my kit, and clipped it on my line about three feet above the top hook. Clearly those bass were swimming low, in spite of that one leap.

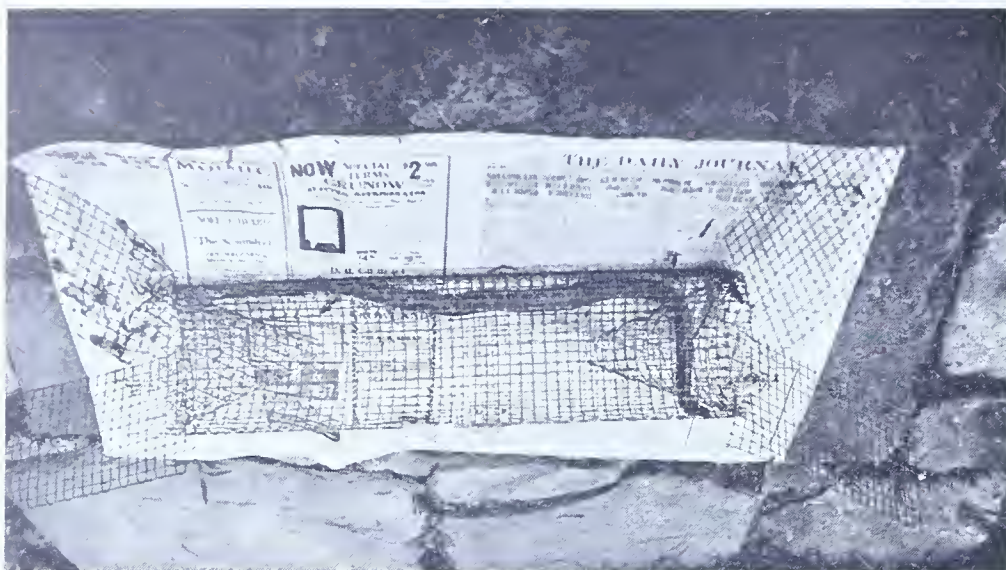
Nothing happened, so I pulled my cork up another foot. A cast, and almost immediately the cork bobbed. Then, with a swish, it disappeared entirely. One, two, three seconds, and I hooked him.

Then the tiny trout rod showed what bending really meant. When the bass at last reached shore, he measured well over a foot. We had no landing net. Why should one carry a net in a sunfish creek? Fish must be played and landed without the assistance of such an article.

The sun was almost down, but before it sank, two more largemouth bass, each over a foot in length, lay beside their brother in my creel. Six fish, counting the large sunny which I had retained, and the creel was almost filled. Three of the fish had to be curled along the side in order to fit in. I shouldered the load, ran up the bank to my car, and was home in a few minutes—with three of the fish still alive—and the last one swimming around the dishpan as I hunted for my scaling knife.

That's why I suggest the reading of "Acres of Diamonds." That, and the fact that I have visited this creek upon several other occasions, and almost invariably with at least some good fortune—and the fact that a barefoot boy displayed an eighteen-inch bass, weighing over three pounds, caught from the same stream. This latter fact gives me some wild ideas for the season just starting.

Who am I, to pay the heavy gas tax and motor to the Poconos, with such possibilities in my own back yard?



DEVICES TRAP FOR WATERSNAKES

Those Centre County watersnakes are being subjected to an intensive control drive this year, according to Hon. Harry E. Weber, of Philipsburg. In thinning down the number of these reptiles, he informs the ANGLER, Elmer Pillings, Philipsburg game protector, has had an active part.

Shown above is the wire trap, of 1/2-inch screen, devised not unlike a wire rat trap except that it has no balanced pedal. Openings at each end, flanked by screen wings, permit easy entrance and after that it is too bad for the snake. The watersnake held by the boy below choked itself to death in trying to get out of the trap.



Bluegill sunfish have a long extended spawning period, from June to August.

The catfish, known as common bullhead, is best adapted to Pennsylvania waters.

TO A BROOK TROUT

Dearest friend:

I'll drop you a *line*
Just to let you know
That my thoughts are all with you,
Where'er *you* may go.

It has been many long moons
Since the last time we met;
But events of that meeting
Are with me as yet.

I *cast* my affections
To you all in vain;
Since you spurned all my *casting*
With utter disdain.

Where the old willow tree
Bathes its feet in the pool
You allowed me to *lure* you,
Then made me look like a fool.

All your frivolous inconsistencies
I most surely did feel;
And I solemnly assure you
My affections were *reel*.

Now, on the fifteenth of April
I would again shake your "*fin*"
I'll keep my appointment
And I hope you are in.

E. R. O'NEIL, SR.

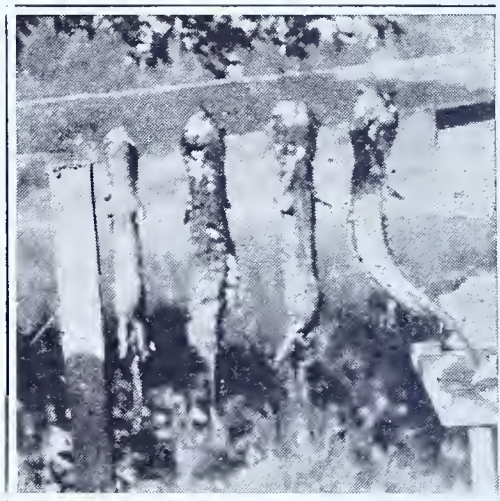
SALAMANDERS SEEK DARK, MOIST HABITAT

Water-dogs or salamanders hold no place in the affections of Pennsylvania fishermen. In several sections of the state, sportsmen during the past fishing season organized expeditions to thin down the number of these ungainly creatures. But, according to Paul L. Swanson, of Wesley, who has made an intensive study of the species, salamanders provide a source of interesting research. In the following article he tells how salamanders may be distinguished from lizards, and certain species provide effective trout lures.

"Most anglers would become highly indignant," writes Mr. Swanson, "if they were to hear someone refer to a sucker as a 'bass,' yet these same anglers may at times make an even worse mistake in calling salamanders 'lizards.' There is such a marked difference between the two that it is surprising that this mistake should remain so common and widespread.

"More than the superficial form of *an* animal must be considered in identifying it, or bats would be considered birds, whales would be fish, eels might be called snakes, etc. In some cases the similarity between

different orders and classes of animals is remarkable. For example, the Glass Snake of the south, which is really a lizard, actually looks more like a snake, as it does not have any legs, but the presence of eyelids and ears at once distinguishes it from the snakes, which have neither. Another common example of misinformation is the



A "CATCH" OF SALAMANDERS

Horned Toad, which is not a toad at all, but a lizard.

"It should be of more than passing interest to fishermen to distinguish salamanders from lizards, as certain species of the former may be used for bait. While the salamander and lizard are shaped somewhat alike, aside from this same general form they do not have much in common. Almost all of the salamanders have a soft, moist skin, the Newt being the exception in Pennsylvania. None of our species have scales, nor do they have claws on their toes. They are amphibians, and like their near relatives, the frogs and toads, spend part of their lives in a larval stage. In general, salamanders spend their larval stage in the water and the adult stage on land. There are exceptions to this however, as Hellbenders and Mud-puppies spend their entire life aquatically, and the Red-backed Salamander is terrestrial throughout life.

"Lizards are reptiles. They have scales, and are not slimy. Unlike salamanders their toes have claws. They prefer dry, sunny locations in contrast to the moist dark habitat of salamanders. They are very quick and very difficult to catch. There are only three species native to the state, and none of them are very common. They are most often observed in the southern counties.

"There are nineteen different kinds of salamanders known to Pennsylvania, some of which attain a large size. To the fishermen the Hellbender and Mud-puppy are perhaps the best known. The Hellbender is the largest salamander in this hemisphere, sometimes reaching a length of two feet or more.

"The Newt or Red Eft is one of the most interesting species, and is also the prettiest. They are usually a trifle less than four inches in length. The adult aquatic stage is olive green above and yellow beneath, sprinkled with black dots. The eggs are laid and hatched in the water of some pond and the young salamanders live there for several months. They spend a second larval stage on the land, where they live possibly for several years before going back to the water

as an adult. In this second larval stage they are a bright orange or red in color and along each side is a row of black-bordered red spots. Unlike most other salamanders they have a rather dry rough skin. As fish-bait they do not turn out to be as good as they look. I have never had a strike on one of them, nor have I heard of trout eating them. I have often tried to feed them to captive snakes, which are fond of most kinds of salamanders, but they refuse to eat Newts. There is probably some property in their skin which makes them unpalatable. Newts make very attractive pets for a vivarium, particularly the red land stage.

"The Dusky Salamander, the Mountain Salamander and the Red-backed Salamander are quite small, and among other species, many fishermen have no doubt found them to be good bait for trout. I have caught quite a few trout by using salamanders for bait, but I hesitate to advocate them as a competitor to the worm, as I would hate to see certain of the rarer species threatened with extinction. At any rate trout seem to prefer worms, and fortunately for these interesting little salamanders most people do not like to pick them up. However when trout are not taking flies and worms are hard to procure, salamanders may make an acceptable substitute, and can usually be discovered by turning over rocks on the damp edges of a stream."

COMPARES LEHIGH TO RIVER CLYDE

James Shaw of Plains, an angler par excellence, is a native of Scotland. He fished the River Clyde for 20 years before coming to the United States and says that there is little difference between it and the Lehigh River in the nature of the streams or the fine fishing they afford.

Up to July 1, he caught some fine brown trout, ranging from 8 to 16 inches in length, in the Lehigh.

Part of his success probably can be attributed to his ability at making tackle. He ties his own flies and makes his own leaders and lines from hairs of horses' tails. It takes him 18 hours to turn out 30 yards of such line.

RAYSTOWN BRANCH PROVIDES CATCHES

Ranking as one of the best smallmouth bass streams in the state, the Raystown Branch of the Juniata this year is living up to its reputation, a report received from Special Warden Harry Moore of Hopewell indicates.

Earl Howard of Everett caught two fine smallmouths 14 and 17 inches in length. A 16½ inch smallmouth taken by Roy McMullin of Johnstown gave him plenty of trouble before it was landed. Jim Roher, son of Robert Roher, president of the Hopewell Rod and Gun Club, caught a 19½ inch wall-eye. Jim is just 10 years old but knows his fishing.

The largest smallmouth bass taken to date on the Branch, based on reports received at the Fish Commission was a 19-inch fish weighing 4 pounds. It was landed by Jasper Thompson of Coalmont, Huntingdon County.



W. H. CORSON, CHAIRMAN, FISH COMMITTEE, LYCOMING SPORTSMEN, WITH TWO BROWNIES FROM MUNCY CREEK. THE ONE ON THE RIGHT WAS 24 INCHES LONG AND WEIGHED FIVE POUNDS.

The heaviest largemouth bass reported ever taken on hook and line weighed 34½ pounds.

The all-time record wall-eyed pike to be taken on hook and line tipped the scales at 15 pounds, it is said.

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HERE ^{A_ND} THERE IN ANGLERDOM



Living up to pre-season predictions, the season for smallmouth and largemouth bass, pickerel and wall-eyed pike is producing splendid catches of these great game fish. While the cream of the warm water fishing season comes in September, October and November, early season catches during July were decidedly encouraging. Some fine bass have been taken, including a largemouth caught on fly and spinner from Lake Gordon, Bedford County, by Noah Nazlerod of Centerville. Nazlerod's catch, according to Special Warden Harry Moore of Hopewell, was 23 inches in length and weighed 6 pounds, 8 ounces.

From Special Warden J. H. Bergman of Butler comes word of fine catches of largemouth bass in Oneida Dam, Butler County. Seven bass ranging in size from 14 to 18 inches were taken on opening day by Mr. Kemper of Butler. Joe Curtis, Butler, took five 18-inch largemouths; Paul Ritter, Butler, five 18-inch bass; Raymond Newbrand, Pittsburgh, three 18-inch bass; Bob Leech, Pittsburgh, two 16-inch bass and two 18-inch bass; E. W. Hutcheson, Pittsburgh, three 18-inch bass. Thorn Run Dam in Butler County also furnished good fishing. Leonard Zaremski, West View, took three 18-inch largemouths, and Paul Guinto, Pittsburgh, three 17-inch largemouths and one measuring 19 inches.

Warden Dave Dahlgren, Philipsburg, Centre County, reports varied catches from streams in that section. Fishing in Elk Creek, Charles Miller, Millheim, caught 4 suckers and 3 eels on June 18. On the same date, Louis Derbeque of Irvona caught 12 catfish, 2 suckers and 2 eels in this stream, and Bill Litten, Philipsburg, landed 15 catfish and 4 eels in Penn's Creek. A fine catch of trout, 8 to 15 inches in length, was made in Elk Creek on June 29 by Gust Swanson of Lanse. Berwindale Lake yielded a 16-inch largemouth bass to Delmont Woods of La Jose on July 3.

From Special Warden Walt Collins of Avon comes word of "the best bass season in years in Lebanon County." A four-pound bass was caught by Harold Birch of Hebron at the Water Works Dam. George Englehart of Lebanon landed a 15½ inch bass weighing 2¾ pounds at Stover's Dam. Melvin Burkholder of Hebron caught a 17-inch bass weighing 3½ pounds at the Water Works Dam. For their length, these fish were exceedingly heavy. A 21-inch pickerel was taken in the Swatara Creek by Harry Miller of Bunker Hill, while George Smith of Lebanon caught a 23½ inch pickerel at Stover's Dam weighing 4½ pounds. The largest bass reported thus far by Collins was taken at Lights Dam. It weighed 4½

Concert for Anglers

Those hours that drag by before midnight on the day before bass season opening sometimes prove tedious for ardent fishermen. But down at Lake Gordon, famous largemouth bass water in Bedford County, the problem was solved in a most agreeable manner for congregated anglers on Sunday evening, June 30, according to Warden Link Lender.

Joe Pritts, R. D. 2, Rockwood, Somerset County, brought his Laurel Hill Mountain Boys Orchestra to the bridge at Gordon early in the evening and they entertained with popular songs until midnight when war was officially declared on Gordon's great largemouth bass and wall-eyed pike.

Incidentally, some fine catches were made at the Bedford County lake following opening of hostilities.

pounds. Les Beard caught two bass, one weighing two pounds, the other one and one-half pounds.

A catch of six whoppin' big bullhead catfish was made in Oneida Dam, July 4, according to Bergman, by Kenneth Earley of Vandergrift. He caught the catfish, ranging in weight to three pounds, on minnows.

Five smallmouth bass, averaging 12 inches in length, were caught in the Little Conoquenessing Creek by E. E. Inian of Evans City. Ralph Williams took four smallmouths from 11 to 12 inches in length from the same stream using flies.

Crappie bass are firmly established in the Penn Central Dam on the Raystown Branch of the Juniata River, according to Warden Link Lender, Bellwood. Almost all fishermen trying their luck at this location on opening day reported catches of crappies.

Fishing in Lost Creek, Juniata County, on June 22, Jake Knouse, McAlisterville, made a catch of 12 brown trout, 9 to 15 inches in length, writes Warden Charlie Long of East Waterford. Garden hackle was the bait.

Two of the biggest bullhead catfish reported to the ANGLER this season were taken by Jerry Wikens, Chambersburg, in Wolf Lake, Franklin County. Both fish measured over 20 inches in length.

George Dewey of Williamsburg caught some fine game fish last year in the Raystown Branch, writes Warden Link Lender of Bellwood. Included in his catch were three wall-eyed pike, one 27½ inches, weight 6 pounds, one 18 inches, and another 22



D. W. HERB, LEFT, WITH A CATCH OF TUSCARORA PICKEREL AND BASS.

inches. Three smallmouth bass taken measured from 14 to 16 inches.

Autumn fishing for suckers was also good on the Branch. Russ Nycum of Everett succeeded in landing ten fine suckers one day in October.

Of a fine season's catch of largemouth bass made on Oneida Dam, Butler County, during the 1934 season by I. R. Merchant, the largest fish measured 21½ inches, according to Special Warden J. H. Bergman. The smallest measured 14 inches. Good catches of bass and catfish were also made on Conoquenessing Creek.

Warden Jim Hall reports great fishing during 1934 on Eaglerock eddy in the Allegheny River. He didn't inform us just what species the 16-pound catfish caught by Harry Scott of Franklin represented, but it's a sure bet it was no bullhead. Probably a channel cat and a good fish in any water

Sheridan Stover of Seneca caught two fine smallmouth bass at Eaglerock while bait casting. One measured 17 inches and the other 18 inches.



Main Hatchery Building, Tionesta, Forest County.

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KILL LESS!

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EDITORIAL

"Live Bait Conservation"

In discussing any subject related to conservation of fish life in Pennsylvania waters, the first consideration should be, I believe, the threat of pollution to all of our efforts. So broad in scope is this problem, however, that I shall touch on but one phase of it. We know, in spite of our efforts to combat this evil, in spite of growing public opinion against it, that today many of our potential streams are so hopelessly polluted as to make prohibitive any growth of fish life. Until adequate legislation has been passed to combat this condition, our chief concern must necessarily be to save our remaining streams for the angler's sport and the public's recreation. Briefly, this means that by concentrating every possible effort in bringing these streams to peak productiveness of aquatic life and maintaining their purity, our fishermen can be given the benefit of the best possible fishing under present conditions.

Primarily, better fishing must be based on better food conditions for the various species of fishes in our streams and lakes. The trout streams have been aided in this respect by the work of interested sportsmen and C C C workers in stream improvement. Ultimately, this improvement of our trout waters through installation of current deflectors, dams and artificial covers must result in an increased supply of natural food in many of our trout streams, and subsequently, better trout fishing.

It is in our warm water streams and lakes, however, that the forage problem is more acute at the present time. We must consider several fac-

tors in this connection. First is the growing number of bass and other carnivorous fishes in our streams. As pointed out before, ideal spawning conditions for the so-called game fishes during the past five years have led to a natural increase. Supplementing this is a constantly increasing supply of game fishes from our hatcheries. The answer to this natural increase and stocking of voracious species must obviously be more available food in the form of forage fishes and other small aquatic life, if our game fish increase is to be maintained.

In the taking of live bait, such as the minnow, from many runs and small tributaries for fishing purposes, it is not the actual number of bait secured that often injures such a stream. Instead it is the tendency in too many instances to take from the minnow net shiners or run chubs of suitable size and to leave the smaller minnows to die, stranded on the shores. This waste of our forage fishes ranks as a real menace to better bass, pickerel and pike fishing in the future. Small tributaries to good warm water fishing streams serve as essential incubators to forage fish production. To deplete them means destruction of a valuable source of game fish food.

The practice of taking live bait from public waters under such wasteful methods must eventually result in poor fishing for the various game species. The fisherman who carries with him about one dozen or not more than fifteen lively chubs, shiners or stone catfish for a day's fishing, is practicing true live bait conservation. In few, if any instances, will he use more than that number. And since they are not crowded together in a bait pail, his bait should be more

lively and effective when on the hook, thus serving to insure more strikes. Too often, fishermen carry with them four dozen bait fish. Many die on the way to fishing waters, and those remaining alive are so weakened as to be of little use in fishing.

Unless suitable accommodations are to be had for bait fish not used during a day's fishing, it is far better to release them in a stream, as in most instances they will die in a short time if retained. While discussing this live bait problem, another angle of it should be considered. I refer specifically to the practice of fishing with goldfish. Most of these fish sold are the scrubs of commercial goldfish hatcheries, that is fish that have not colored properly under hatchery conditions. They are, in one sense of the word, glorified carp, and as such, should never be used, much less released after fishing, in our streams. Introduction of foreign species in Pennsylvania fishing waters has been one of the most detrimental practices to our fishing.

I realize that many of our anglers today find sport in fishing for bass and other game species of the warm water with live bait. As a group, they are good sportsmen, and I am convinced that if they follow the principle of "baitfish-conservation," the saving of our forage fishes by using only what they need in a day astream, careful releasing of smaller minnows taken in a minnow seine and releasing bait not used, unless they have suitable places to keep them, we shall have made outstanding progress toward the goal of better fishing.



Commissioner of Fisheries.

Defines Fishing Rights on Pennsylvania Waters

WHAT are the fisherman's rights on streams stocked with fish by the Fish Commission? What streams may be fished from the bed of the stream or boat? These two vital questions, of particular interest to every angler in Pennsylvania, are answered in a clear and concise manner by an informal opinion handed down by the Department of Justice through Hon. Grover C. Ladner, Deputy Attorney General and President of the Pennsylvania Federation of Sportsmen's Clubs.

The opinion follows, and should accomplish a great deal in clearing up the vexing problems as to the sportsmen's rights in fishing.

INFORMAL OPINION No. 600

Honorable O. M. Deibler,
Commissioner of Fisheries,
Harrisburg, Pennsylvania.

Dear Mr. Deibler:

I am in receipt from your office of two inquiries relating to the question of fishing rights. The first inquiry concerns the right of fishermen to fish the Youghiogheny River, and, included in that question, the extent to which fishermen may fish small streams without consent of the owner. The other question involves the constitutionality of Section 254 of The Fish Law of 1925, herein-after quoted.

These questions will be considered in order. First, relative to the right to fish the Youghiogheny. The general rule as laid down by the authorities is that the right of fishery in public streams belongs to the State, and, therefore, is open to all citizens of the State under the law, rules and regulations as laid down by the State or by the body constituted by it to administer the Fish Law. As to private streams, the rule is that while the fish therein do not belong to the riparian owner or owners of the land through which the private stream flows, nevertheless the public may not fish therein from the lands of the riparian owner, and, in private streams, the lands of the riparian owners are considered to be not merely the banks or the shore but the stream bed. See *COMMONWEALTH v. FOSTER*, 36 Pa. Superior Court, 433 (1908).

In order to apply these rules, therefore, we must first determine whether a given stream falls within the category of public or private streams. The ancient test in England of public waters as compared to private waters was whether the tide flowed or ebbed therein. This doctrine, however, was not adopted in this country, and the law of Pennsylvania is settled to be that a public stream is a stream that is navigable—that is floatable and boatable. A private stream is one that is not. In *SOUTHWEST PENNSYLVANIA PIPE LINES v. RODGERS SAND COMPANY*, 43 Pa. Superior Court, 524, (1910), the law was thus laid down by Judge Beaver:

"It was very early held in Pennsylvania that the rights of riparian owners under



HON. GROVER C. LADNER

the common law in England do not apply to our principal rivers.

"It was said in *Shrunk v. The President, etc., of the Schuylkill Navigation Co.*, 14 S. & R. 71, by Mr. Chief Justice TILGHMAN (p. 79): 'I consider it as settled in Pennsylvania, by the decision of *Carson v. Blazer*, 2 Binney, 457, that the owners of land on the banks of the Susquehanna and other principal rivers have not an exclusive right to fish in the river immediately in front of their lands, but that the right to fisheries, in these rivers, is vested in the state, and open to all. It is unnecessary to enumerate at this time the rivers which may be called principal, but that name may be safely given to the Ohio, Monongahela, Youghiogheny, Allegheny, Susquehanna, and its north and west branches, Juniata, Schuylkill, Lehigh and Delaware.' It was also held in *Wainwright v. McCullough*, 63 Pa. 66, that, 'The Allegheny, Monongahela and Ohio Rivers are rivers naturally navigable and have been classed with the Delaware and Susquehanna' and that 'between high and low water mark, the riparian owner cannot occupy to the prejudice of navigation, nor place obstructions on the shore, without express authority from the state.'"

It will be observed that, in this decision, the Youghiogheny is listed as a naturally navigable stream, and it determines beyond question that there is a right of public fishing in that river. We must say, however, that the right of public fishing and the right of the public to fish in the stream merely means that the public has a right to fish from boats up and down the stream bed and to wade in the stream. The right of the riparian owner to fish from his land or

to exclude anyone from crossing it is not involved. This right is his by virtue of the ownership of the land, and the mere fact that the land borders on a public stream does not limit his right to exclude trespassers from his land. In a private stream, however, the public may not only not fish from the shore or banks or go through the riparian owner's land to the stream, but they may not even wade up and down the stream bed for the reason that the bed of the stream belongs to the riparian owners and not to the Commonwealth. *COMMONWEALTH v. FOSTER*, 36 Pa. Superior Court, 433, illustrates this distinction. In that case, a fisherman was arrested for trespass in wading in the bed of the Lackawaxen Creek. He did not enter the creek from the prosecutor's land, but entered into the bed of the creek from a public bridge that crossed it, then waded up the stream in front of the prosecutor's land, but keeping within the banks of the stream. It appeared also that the Lackawaxen Creek had, by the Act of Assembly of March 26, 1814, 6 Sm. L. 187, been declared by the Legislature to be a public highway for the passage of rafts, boats and vessels. In point of fact, however, this creek was not navigable and had never been used either for the passage of rafts, boats or vessels. It was, therefore, despite the declaration of the Legislature, not navigable in fact. The Superior Court held that, unless the stream was navigable *in fact*, it remained a private stream, and that the defendant who waded in the bed thereof was trespassing on the land of the private owner thereof. In so holding, the Court followed a previous decision laid down in *THE BARCLAY RAILROAD AND COAL CO v. INGHAM*, 36 Pa. 194, where it was said:

"* * * 'If the stream is not actually navigable, so that there is no public right of way therein, a declaration by the legislature that it shall be regarded as navigable is a taking of property for public use, and unless compensation is made the statute will be in conflict with the constitutional provision requiring compensation in such cases.' * * *"

The theory of these decisions is obvious and is based on the fact that, with regard to the smaller streams and creeks, the State grants to the riparian owner the soil over which they flow without any reservation respecting it. But the property so granted is, nevertheless, subject to the public easement of the use of such stream for the purpose of navigation so far as they are capable of it. With public streams—those navigable in fact—the land over which the river flows is regarded as the property of the State, and the title of the riparian owner ends at the banks. Consequently, in the one case, a fisherman is trespassing when he walks along the bottom of the stream, because he is walking on private land, even though water flows over it; whereas in the other,

he is not trespassing, because he is walking on public land.

For a further consideration of the distinction between public and private streams, see opinion of former Deputy Attorney General Cunningham entitled in re CASSELMAN RIVER, reported in 40 Pa. C. C., page 457, and cases there cited.

The other question involved in your inquiry centers around Section 254 of the Fish Law of 1925 which provides as follows:

"Any natural stream or lake in this Commonwealth, which has been or may be stocked with fish furnished by the Commonwealth or the Board, shall be open to the public for the purpose of lawful fishing, but nothing in this section shall be so construed as to free any person trespassing on the lands of any person in this Commonwealth from liability for any damage he may do to said lands or the improvement thereon or to any crops or livestock or poultry thereon."

The words "any natural stream or lake" are so all-inclusive as to cover private streams as well as the navigable or public streams. So far as the public or navigable streams are concerned as hereinbefore construed, the public would have a right to fish the bed of the stream because it belongs to the public, though not the right to fish from the banks.

This section is obviously drawn to avoid the consequences of the law both as to private and public streams so far as fishing from the shore is concerned, as laid down in the foregoing part of this opinion. It attempts to safeguard the property right of the owner by securing to him redress for damage done. It is an ingenious attempt to satisfy the mandate of the Constitution that private property shall not be taken without due process of law. Ordinarily the term "taking private property without due process of law" involves the use thereof. Damage or injury resulting from trespass done would not be the equivalent to damage for the use of private property from which to fish, because such damages in most cases would be nominal, and where fishermen waded on the bed of a private stream, would be virtually non-existent. A statute containing similar provisions was held by the Appellate Court of Colorado to be unconstitutional in the case of HARTMAN v. TRESISE, 36 Col. 146, 84 Pac. 83, where the court said:

"* * * The legislature cannot make lawful a trespass by one man upon the lands of another by providing that, if any damage is thereby done, a recovery therefor may be had. That is just what our general assembly by its statute has attempted. But the act contravenes the provisions of section 15 of article 2 of our state constitution, * * *"

A further attempt is made to meet the constitutional objections by making the section here under consideration applicable only to those streams which have been stocked with fish furnished by the Commonwealth or the Board of Fish Commissioners. Though there is no case in this state directly in point in interpreting such a law, we are not without authority in other states. Thus, in the case of HARTMAN v. TRESISE, supra, held a similar provision did not save the constitutionality thereof. See also the cases of BEACH v. MORGAN, 67



EXPERTLY CASTING THE DRY FLY. GOVERNOR GEORGE H. EARLE FISHED AT THE SPRING CREEK PROJECT IN JULY. COMMISSIONER DEIBLER, AT THE RIGHT, LOOKS ON.

N. H. 529, 41 A. 349, 68 Am. S. R. 692; ALBRIGHT v. CORTRIGHT, 64 N. J. L. 330, 45 A. 634, 81 Am. S. R. 504; ROCKEFELLER v. LAMORA, 85 App. Div. 254, 83 N. Y. S. 289, laying down the general principle that stocking private streams or waters with fish raised at the expense of the State gives the public no right of fishing therein without the owners' consent.

Even if the stocking of the stream by the State were thought to give the public a right to fish therefrom, they would still have no right to pass over the riparian owners' land to get to the stream. Nor can any legislative fiat confer such rights on another, for any attempt on the part of the Legislature to give one a right of passage on lands of another calls into force the constitutional provision forbidding the taking of property without due process of law. NEW ENGLAND TROUT AND SALMON CLUB v. MATHER, 68 Vt. 338, 35 A. 323, 33 L. R. A. 569, and so far as navigable streams are concerned, it was held in the case of DOUGLAS v. BERGLAND, 216 Mich. 380, 185 N. W. 819, 20 A. L. R. 197, that the plaintiff's right to fish in a navigable lake did not carry with it the right to trespass on the fast land of a riparian owner to the exercise of such right.

In view of what was said by the appellate courts in the first part of the opinion, namely, in the cases of COMMONWEALTH v. FOSTER, supra, and THE BARCLAY RAILROAD AND COAL CO. v. INGHAM, supra, it is quite probable that our courts would rule the same as the cases cited.

Where, however, a private stream is stocked on application of the riparian owners, or the owner of all of the land through which the private stream flows, an entirely different question may arise. Since everyone is presumed to know the law, it may well be that the existence of Section 254 of

the Fish Code with its legislative authorization of public fishing in streams publicly stocked, if such stocking is requested by the owners, may result in an implied waiver of the constitutional right of the owner of the land to deny the public the right to fish subject to liability for any actual damage done in trespassing. Or, as suggested in the case of ROCKEFELLER v. LAMORA, 83 N. Y. S. 289, stocking at the request of the owner may well be regarded as tantamount to a dedication to the public of the right to fish.

To summarize, therefore, we are of the opinion:

1. That the Youghiogheny River is a public stream and the right exists in the public to fish from the bed of the stream or by boat off shore.

2. That where an owner of a private stream or owners of land bordering a public stream make or join in an application to the Board of Fish Commissioners for the stocking of the stream flowing through or by their land, they may be regarded as having waived their constitutional right to object to fishing from their shores and as to them, Section 254 of the Fish Code may be regarded as constitutional.

3. In other cases, however, where the stocking is done by the Commonwealth or the Board of Fish Commissioners without request or application by said owners of bordering land, Section 254 must be regarded as unconstitutional and as conferring no right on the public to fish from the shores or stream bed of a private stream or from the banks or shores of a public stream.

Very truly yours,

GROVER C. LADNER,

Deputy Attorney General.

Approved:

Charles J. Margiotti,

Attorney General.

Pallidus, The Valiant

Life Sketch of a Bluegill Sunfish

LEPOMIS Pallidus, the bluegill sunfish, came into being one sultry day in mid-July. During the week preceding, when his sire, a bluegill of eight-inch length, had hovered over the nest of eggs, there had been a rather noticeable indifference in the attitude of the parent fish. This indifference, however, could not match that of the mother, for immediately after completion of the spawning act, she had deserted the nest, a saucer-shaped depression two feet in diameter.

The male sunfish, guarding the eggs during the seven-day hatching period, gave no hint of courage at the approach of a fisherman. Instead, he darted from the shallow shelf where the nest was located, seeking the safety of deeper water and leaving the eggs at the mercy of any invader.

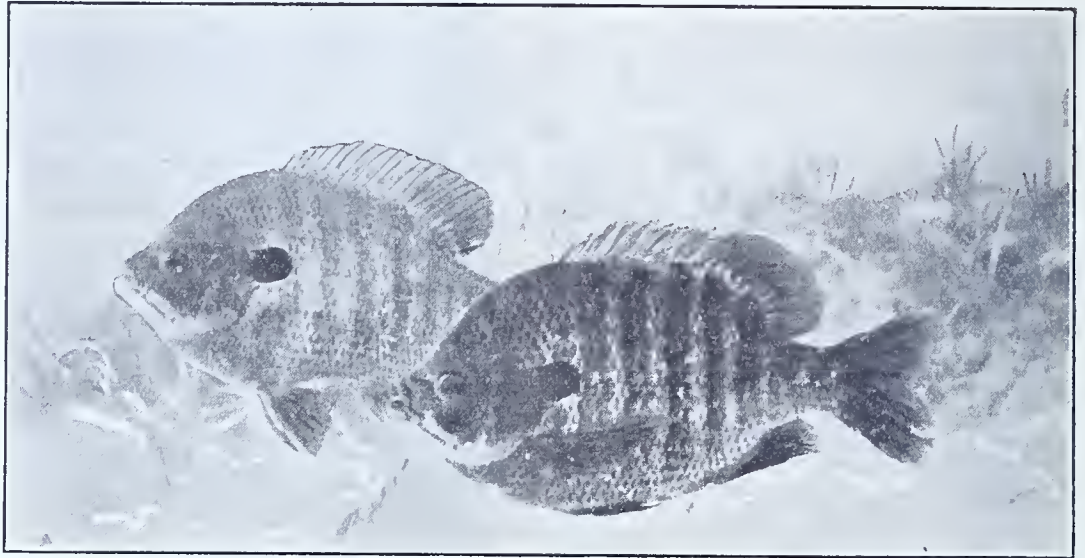
But on the day when Pallidus emerged from the egg, a strange transformation occurred in the adult male. No longer was he a timorous creature, trusting to blind luck in the care of the nest. For this bluegill was of the family Centrarchidae, the family of the basses. Aggressive, pugnacious to the extreme, he was a match for anything of his size in the water realm of stream and lake.

During the next ten days, while the tiny young were directly dependent upon his care, the male was to lead a harried existence. Now, lying among the pebbles and small, clean-swept rocks in the nest, the baby sunfish seemed like tiny, sparkling bits of glass. Attached to each was a yolk sac from which they were drawing strength, and not for several days would they venture from the nest's rough surface.

It was four days after the hatching of Pallidus that an incident occurred in which he almost lost his life. Seven little fish with black tipped tails, young smallmouth bass, surrounded the nest. Then one of them darted toward it. In an instant, the parent bluegill, dorsal spine erect, shot from the nest in pursuit of the daring youngster. No sooner had he left before the other six scurried into the abandoned nest, nosing between the stones and hungrily devouring the helpless sunfish brood. Pallidus' sire returned in time, fortunately to prevent extensive damage to his young and to this circumstance only, the baby sunfish probably owed his life.

The coming of the black bass to the tiny lake in which Pallidus was to make his home, incidentally, had occurred ten years before. Since that time, not only the sunfish, but the pickerel, shiners and even young catfish, native to this body of water, had decreased rapidly in number.

Of all the sunfishes, the bluegills are most truly the sunfish of the lakes. True, here in Pennsylvania, owing to the stocking program of the Fish Commission, they have been introduced into many of our streams and have thrived there, but it is noticeable that many of the largest fish of this species taken each year come from pond or lake. Apparently, this native environment still



BLUEGILLS

holds the edge over all others in bluegill production, from the angle of size and number.

The bass episode was not the only one to test the courage of the sunfish guardian. Almost as great danger lurked in the minnow schools, but these he readily dispersed. Occasionally a pickerel or a larger bass would approach the nest, perhaps unwittingly, and would be met by the challenging parent. In two weeks, however, the baby sunfish were active enough to warrant dispersal of the brood, and shortly thereafter, he left them. The same instinct that governs the male parent bass, sways the bluegill, in that after deserting the young, he will not hesitate to devour any that he may find if the mood prompts him.

Pallidus, after leaving the nest, found a tiny, weed-grown cove in which he lurked the first season. His growth in this ideal environment was rapid, for swarming in the sunlit shallows and amid the fronds of water weeds were vast numbers of net plankton and tiny water insects. Many tiny organisms, cyclops, for instance, were devoured by Pallidus during the early stages of his growth. By October of the year in which he emerged from the egg, he had attained a length of three inches. November found him and his kind entering a period of inactivity that would extend through the winter and early spring months to the warming of the water in the lake in April.

His coloration during the first year

tended more to mottling than it would in later life. The rich greenish olive on the back faded into paler hues on the sides. The top of his head was dark greenish while the gill covers or opercles and cheek were of bluish tinge. The "ear" or opercular flap was a rich velvety black, marked at the base by a tiny spot. Tips of the anal fin, behind the vent, and the last rays of the dorsal fin were also marked with black. Appearing on the sides were a number of darkish green bars, while all of the fins were of greenish hue, the pectoral lightest in color and tinted reddish at the base. Later in life, the bars would merge into solid color, while his belly would be red of a copperish hue.

As a yearling, Pallidus was exceedingly active in foraging. He was a shore feeder, hovering not far from weed beds and reed patches of the shallows. There he found much food to his liking—grasshoppers that struggled spasmodically to regain the shore, earthworms washed from the banks during heavy showers, small crayfish darting with their peculiar backward swimming motions to regain the shelter of rocks on the bottom, and the young of the golden shiners. He was a voracious little fellow, consuming everything that appeared edible, it seemed, and by the end of his second year was five inches in length and well-developed in girth.

By this time, he had learned to avoid the vicinity of a sunken log in a cove a short distance upshore. He was now a member of a school of sunfish in the yearling stage. One day, as the school cruised past the shadowy log, a great green fish, long and slender in shape, had flashed from its place of concealment beneath the log. Long jaws armed with sharp teeth of varying length had clamped one sunfish and the big pickerel then settled with its prey for a brief interval before turning and swallowing it. Pallidus and his companions had scattered wildly and since that time had given the log and the terror it concealed wide berth.

By the fifth year of his life, Pallidus was an exceedingly beautiful fish, the predomi-



THE BLUEGILL IS THE SUNFISH OF THE LAKES.

nant green of his coloration set off by the copperish red hue of his central surface or belly. Broad he was in girth, broader than the hand of a big man, and in length nearly ten inches. His weight of twelve ounces was incorporated in a graceful, if somewhat rounded form, and he was inch for inch, the most pugnacious and scrappy fish in the little lake.

Increasingly during the last two years of his life, he had taken toll from the golden shiners, larger crayfish and insects that were available. He struck with a rush of color at moving objects, much as did his larger cousin, the black bass. With greater weight and length, he had discarded to some extent the tendency to run with his prey. Perhaps, because he was now the largest fish in the school of seven, he no longer felt it necessary to put distance between himself and his rivals in the school before devouring his victim.

While the sunfish in the school were in every sense of the word voracious, there seemed a friendly rivalry about these companionable fish as they sought their food. Often, on days of bright sunlight, the school hovered lazily on the surface, their graceful dorsal fins giving the effect of tiny gossamer sails as they swam about. Occasionally, on such an occasion, one of the group would serve as a target for the amazingly accurate plunge of an osprey or fish hawk that wheeled gracefully against the blue of the sky.

A noticeable feature in the feeding of the bluegills was the unerring quality of their strikes. Whether the lunge was upward at a grasshopper on the surface, at the fleet shimmering flash of a small golden shiner, or at some crayfish or other prey on the bottom, the fish first reaching a victim seldom if ever seemed to miss. After the strike, if a minnow or other small forage fish had been taken, like its cousin the bass, it turned the prey and swallowed it head-first. Primarily, the bluegills, however, seemed



PHOTO BY LA MAR MUMBAR.

**PALLIDUS, THE BLUEGILL, IS MOST CERTAINLY
"BOYHOOD'S PET"**

to prefer large insect life and forms of crustaceans in their environment. Earthworms and aquatic stages of insects such as the larva of the crane fly also formed a portion of their diet.

While spawning time for sunfish in the lake varied from June through August, that for Pallidus came in July, the month of his birth, and in the second year of his life. After selecting the site for the nest, he rooted up small stones with his snout, and then industriously fanned away all sediment and lighter sand with a fin and body motion.

After the female sunfish had deposited about 3000 eggs, tiny in size and adhesive by nature, clinging to the clean bed of the nest, he was left to the care of eggs and offspring just as his sire had been.

It was perhaps more luck than any sagacity on his part, that had saved Pallidus from fishermen until the sixth year of his life when he was truly a mammoth sunfish over eleven inches in length. On two occasions he had succeeded in breaking away from the barb of a hook. One of these lures had been a worm on the crude hook and line of a boy angler in the third year of his life. The other occasion came when he struck with savage abandon at fly and spinner manipulated by an expert fly fisherman, in his fourth year.

Fate was ultimately to claim him by the first method, however. The boy had quietly made his way to the edge of the reeds on that momentous day. This time he deftly fastened a yellow-bodied grasshopper to the small hook. The long cane pole he was carrying flipped this natural lure to the surface almost in the midst of the sunfish school. Pallidus, the big bluegill, was first to reach it and his girth formed a swirl in the water as the hook was driven home. His fighting tactics, tactics that would justify him as a supreme game fish with any fisherman, were to no avail against the skill of the youthful angler.

After all, it was perhaps highly appropriate that the boy carried him from the lake that day, for of all fresh water fishes, Pallidus the bluegill is most certainly "boyhood's pet."

* * * * *

"Pallidus, The Valiant" is fourth of a series of articles by your editor on life habits of outstanding game fishes in Pennsylvania inland waters.



The Fate of Our Forage Fish

By HENRY C. MARKUS
U. S. Bureau of Fisheries
Courtesy AMERICAN GAME

FISHING, resulting from shorter working hours has thrown a tremendous burden on our supply of game fish. The condition of our water has been studied extensively from the propagation, reforestation, stream improvement and pollution phases, but the promiscuous taking of forage fish from our waters has been overlooked. It was mentioned by Hubbs and Embury at the 1933 meeting of the American Fisheries Society and noted in the Transactions of the American Fisheries Society (Vol. 63 pp. 53-63).

It is not the number of minnows that is actually sold to the fishermen that produces this heavy drain on our supply of forage fish, but it is the number of fish that are destroyed in seining for them, in transportation from streams to tanks and to the inadequate equipment for holding and caring for them. In order to emphasize these facts the writer wishes to state the results of such careless use of forage fish in the locality of Chandlerville, Illinois.

In 1929 while the writer was employed by the Illinois Natural History Survey, a survey was made of the Sangamon River. In the vicinity of Chandlerville there was an abundance of minnows and small game fish in the stream that emptied into the Sangamon. In Jobes Creek, minnows and game fish were so plentiful that one haul through a pool with a fifteen foot seine would fill a ten quart pail with fish. This stream was teeming with silvery minnows (*Hybognathus nuchalis*).

Shameful Waste Observed

The following observations were made when a bait dealer was getting his supply of bait from this stream. Twenty-five per cent of the catch taken from the stream was left on the bank and water's edge. These consisted chiefly of small fish that went through the meshes of the seine and were trampled into the mud and algae while the desirable minnows were being sorted out.

Thirty per cent of the minnows that were put into the cans died while being transported from the stream to the holding tank. Of the minnows put into the holding tank 88.57 per cent died or were discarded and only 11.43 per cent were eventually sold. The percentages with the exception of the first were by actual count. In other words, out of every 1,000 minnows that were taken from the stream 250 died on the bank, 225 died in transportation, 465 died in the holding tank and 60 minnows were sold. *Only six per cent of the original catch was sold to the fishermen.* This case no doubt was due to the fact that the minnows were plentiful in the nearby streams.

The result of such careless use of minnows in that locality was impressed upon the writer three years later when he was stationed at Fairport, Iowa, by the United States Bureau of Fisheries to conduct life history studies on forage fish. In the spring of 1932 a visit was made to Jobes Creek to get the minnow, *Hybognathus nuchalis*.

After spending the greater part of the day seining the stream only one specimen was obtained. Not only was this species practically extinct in this stream, but the same was true of all other fishes including the game fish that three years before had been abundant.

Reaction Is Quick

The year after the state survey was made a concrete highway had been completed through this locality (Chandlerville, Ill.) making the numerous lakes and larger streams in the Sangamon and Illinois River lowlands near Chandlerville more accessible. These waters provided good bass fishing and, consequently, the bait dealers had increased. However, they seemed to be taking better care of their minnows since they were difficult to obtain.

We talked with one of the bait dealers and showed him the only specimen that we had caught and inquired as to where such minnows could be found. His reply was, "Those are round shiners and we have been getting one dollar per dozen for them, but we can't get them any more." Upon further inquiry it was found that they had to go fifteen miles for their minnows.

Such change as had come over this locality in three years in depleting the forage fish and small game fish from the smaller streams is certain to decrease the game fish population from the larger waters that are fed by these streams. To the writer it seems comparable to the removing of grocery stores from our cities.

In a number of instances the writer has come in contact with live bait dealers, who have the opinion that all small fish are minnows and upon further inquiry as to what they call the small carp, bass or whatever they may have, they refer to them as carp or bass minnows. The use of these small game or commercial fish as bait by the fishermen often introduces species of fish in a body of water where they are undesirable. This may happen by the small fish getting

off of the hook or by dumping the bait after the days fishing.

Remedies Suggested

To eliminate the above undesirable conditions live bait dealers should be encouraged to rear their own minnows. Golden shiners (*Notemigonus crysoleucas*), black-head minnows (*Hybomachius notatus*), and horned-dace (*Semotilus atromaculatus*) may be propagated in ponds and all make good live baits. All the species above mentioned with the exception of the horned-dace have been propagated in ponds by the United States Bureau of Fisheries for many years.

No definite sized body of water is required for their propagation. A pond from one-fourth to an acre in area and with a depth of 12 inches on the shallow side to a depth of four feet in the deepest part is desirable. Golden shiners require vegetation in the water for spawning purposes. Any of the forms such as pondweeds (*Potamogeton*), water milfoil (*Myriophyllum*), waterweeds (*Elodea*), or filamentous algae are suitable. Golden shiners have been grown to a length of four inches in a single season at Fairport, Iowa.

Blunt-nose and black-head minnows require pieces of tile, rocks, timber or any similar object with a flat bottom placed in the water horizontally or at an angle to the surface for spawning beds. These objects must have their flat surfaces far enough from the bottom of the pond to allow plenty of space for spawning activities. Lord (1927: 94-95) states, "The production of black-head minnows per acre on this basis stands at 201,971 or approximately 119 pounds per acre." Markus (1934) produced a yield of 4,414 offspring from a single pair of black-heads.

Procedure with Horned-dace

In some fishing areas the creek chub, which in most cases is referred to as the horned-dace, has become famous as a bait minnow. This minnow no doubt has gained his promi-



PENNSYLVANIA FORAGE FISH—GOLDEN SHINERS

nence by its activity and durability on the hook. It, too, may be propagated in ponds. Its spawning, however, produces another problem for their natural spawning beds are in streams near riffles.

This difficulty may be overcome by stripping the milt and eggs from the adults before they spawn naturally. The ripe adults give off their milt and eggs very easily; the eggs being handled in the same manner as trout eggs. The fertilized eggs may be put on hatching trays made of cheese-cloth tacked on wooden frames or placed in pans or aquaria. If pans or aquaria are used the water should be changed at least twice a day. If placed on trays in running water a very weak stream is all that is necessary.

Horned-dace are one of the first minnows to spawn in the spring. They were stripped in Champaign County, Illinois, on April 19, 1930. In Monroe County, New York, they were stripped May 1, 1933 and April 25, 1934. The incubation period in water of room temperature is five days. Eggs taken May 2 at 5:00 P. M. and placed in water at room temperature began hatching the morning of May 6 and completed hatching May 7. Many of the young hatched from these eggs and reared in a pond attained a length of three and one-half inches by the latter part of September. Leonard (1927:39) found year old individuals 3.7 inches long and also states "From the graph it is seen that the most rapid growth is made the first year and that the rate decreases considerably thereafter." His measurements as well as those referred to in this paper are from the tip of the snout to the base of the tail.

The writer found that the four species of minnows above mentioned thrive on vegetation and the smaller organisms among the vegetation. Any of the four species not used during the day's fishing by the sportsmen may be liberated in any water and should they chance to multiply they would materially aid the stream or lake as far as food is concerned for the game fish, *with the exception of the horned-dace*. If the horned-dace is not present in the water being fished, I would hesitate liberating it for it is one of our most voracious minnows.

In conclusion the bait dealer should be encouraged to propagate his own minnows. This would leave the entire supply of forage fish in the streams as food for the game fish thereby increasing the growth and number of these fish. This should result in better fishing, which in turn, will enable the bait dealer to sell more live minnows.

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PHOTO BY LA MAR MUMBAR.

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BOARD RULES ON LIVE BAIT SALE

The Board of Fish Commissioners has ruled that no prosecution shall be made for the sale of bait-fish or fish-bait, unless the person has more than fifty in possession as prescribed by law.

Oliver M. Deibler, Commissioner of Fisheries made the following announcement recently:

At the last session of the Legislature, the inland water bait-fish law was amended as follows:

"THE TERM 'BAIT-FISH' OR 'FISH-BAIT' SHALL MEAN: ALL FORMS OF MINNOWS EXCEPT FALLFISH, ALL FORMS OF KILLIFISHES AND STONE CATFISH, CRAWFISH KNOWN AS CRAYFISH OR CRABS, CRANE FLIES OR WATERWORMS, MUSSELS, AND HELGRAMITES.

"AMENDMENT ALSO PROHIBITS THE SALE OF BAIT-FISH OR FISH-BAIT TAKEN FROM OUR INLAND WATERS."

At a meeting of the Executive Committee of the Board, the following resolution was adopted:

"THAT NO PROSECUTION SHALL BE MADE FOR THE SALE OF BAIT-FISH OR FISH-BAIT, UNLESS THE PERSON HAS IN HIS POSSESSION MORE THAN FIFTY (50), AS PRESCRIBED BY LAW."

The status of the commercial grower remains the same.

When the law was amended the Legislature had no thought of depriving the average fisherman of his means of securing bait, and as above stated, unless a person has in his possession more than fifty, no prosecution will be made.

The Board will be glad to answer any further questions on this subject.

PANFISH CONTEST

One of the most interesting contests to be brought to the attention of the ANGLER this year is the third annual contest of the Muddy Creek Junior Fishing Club. First, second and third prizes were awarded to boys in the club for catching the largest fish in three divisions, bullhead catfish, sunfish and sucker or chub. A free line was given for largest fish caught each week during the contest which covered the period May 15 to July 6, inclusive.

Other rules governing the contest were: That all boys competing be under 16 years of age; All members must obey the Pennsylvania fish laws; All fish taken under five inches in length must be returned to the water immediately. Make sure hands are wet when handling these fish; All fish must be taken from the waters of Muddy Creek in Greene county; No charge is made to enter the contest and all members must be residents of Carmichaels Boro and Cumberland township.

Yellow perch eggs come forth in a gelatinous mass, resembling a piece of accordion pleated lace.

STONE QUARRY YIELDS FINE BROWN TROUT

While fishing in a stone quarry west of Myerstown, Lebanon County, Arthur Swales of Lebanon caught an unusually fine brown trout, according to Warden Frank Sanda of Steelton. The brownie, exceptionally thick and broad in girth measured 19¼ inches in length. It weighed 5¼ pounds.

Clarion River Pollution Survey

By KENNETH A. REID
Member, Board of Fish Commissioners

FOR many years the Clarion River has been an outstanding example of the deplorable pollution existing in many of Pennsylvania's finest streams. According to old timers of the region the river derived its name, when first surveyed by the white men, from its clear sparkling waters and the clarion sound of its shining riffles as it cut its way southwestward through the great white pine forests of the Allegheny Plateau to its junction with the Allegheny River near the corner of Clarion, Venango and Butler Counties. Today its poetic name seems a strange enigma as one gazes on the black, turbid and evil smelling water of the river wending its way through the same beautiful valley, and in some sections past the same magnificent white pines and hemlocks that covered its hills when the white men first gazed upon it. What a shock it would be to the Red Man today if he were to float again down this black, dead river in his bark canoe!

The Clarion River is different from most of our polluted rivers, and this difference makes its pollution all the more regrettable and unjustifiable. The usual log of a polluted river records a pure headwaters with successive polluting effluents from industries and municipalities making it worse and worse as it flows along, with the lower waters in a thickly settled and highly industrialized region. The case of the Clarion is just the reverse; it receives all of its noxious pollution near its headwaters in Elk County and then flows through a sparsely settled and beautifully wooded valley for more than sixty miles to its mouth. Along this lower course there is neither a paved highway nor a railroad along the stream, and even the neighborhood roads that occasionally cross it or hug its banks for short stretches, are comparatively infrequent. From the mouth of Little Toby Creek, the last source of noxious pollution, to Cook Forest and for miles below, every few miles of travel sees a sparkling clear trout stream enter the river. Some of these like Bear, Spring and Millstone Creeks are large trout streams, but the sum total of all this pure water from tributaries effects no appreciable improvement in the vile black water of the Clarion itself.

At Cook Forest, the outstanding shrine of the State, where thousands go annually to admire and worship the wisely preserved remnant of giant trees, a memorial to the Penn's Woods of old, the black and evil smelling river is the one sour note in an otherwise ideal sylvan picture. For seven miles of state owned forest frontage, this black river, made foul and black as a result of special privileges granted by the State Government in the past to big industries in the name of "progress and development", mocks the visitor like a diabolical jest of Lincoln's famous words describing the democratic form of government that we are supposed to enjoy, "government of the people, by the people, and for the people." At least where streams are concerned, the Clarion

River is a shining example (figuratively speaking) of the fact that we have enjoyed this type of government only in political pronouncements, while actually it has been administered "by and for special interests."

Previous efforts to clean up the Clarion as well as other streams, have been confined largely to the ranks of sportsmen. The polluting industries invariably reply to these efforts with the moss grown argument; "What are a few fish compared to our big industries that furnish employment to so many thousand people and on which the prosperity of Pennsylvania depends?" The general public has remained woefully apathetic toward their rightful heritage of pure water, and as the Pennsylvania Manufacturers Association has been well organized and especially well financed when compared with the sportsmen, the majority of the legislators, session after session, have done its bidding and let the real interests of the public they are supposed to represent go hang.

But a year or so ago something happened on the Clarion that caused even the sleeping public to wake up and begin to think about water pollution. It happens that the majority of Pittsburghers, and a few hundred thousand other people immediately north of them, drink water that is taken from the Allegheny River. As long as Mr. Drake at the Aspinwall plant and other waterworks engineers and chemists could keep the water fairly clear and palatable, even though at time it necessarily tasted rather strongly of chemicals, and the refined treatment required to make this polluted water bacteriologically safe for human consumption was costing the citizens of Pittsburgh alone a quarter million dollars annually, they were content to go along without much complaint; but when a power company found it necessary to drain its dam on the Clarion to make repairs, and as a consequence released a greatly increased flood of the accumulated black "soup" from the reservoir floor, the dark and vile tasting water that came through the faucets was more than even placid Pittsburghers could swallow without protest. Nor did the attempted explanation of one official that, "oak leaves falling in the river turned the water black", satisfy them, for fortunately some of the citizens had visited Cook Forest and other points farther up the valley from which the pollution came.

A few weeks ago Mayor McNair of Pittsburgh was a guest speaker at a luncheon in New Kensington. Senator Benjamin Thompson, who introduced the pure streams bill in the last session of the legislature was present at this luncheon, and the pollution of the Clarion was a subject of discussion. Mayor McNair decided that it would be a good idea to take a number of Pittsburgh officials and interested citizens on a tour of the Allegheny and Clarion Rivers so that they could see the kind of water they were obliged to drink and learn something about the sources of this pollution. Accordingly on August

13th he headed a caravan up through New Kensington, Freeport, Kittanning, New Bethlehem, Clarion, Brookville, Brockway, Ridgway, St. Marys, Johnsonburg and Wilcox.

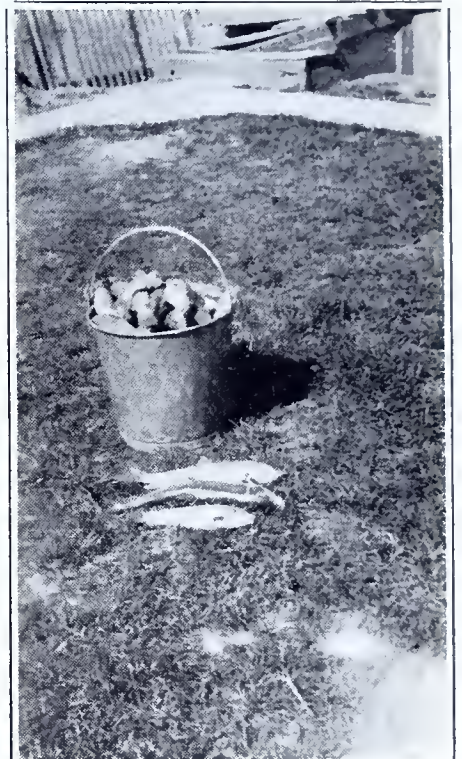
The party from all sections of the lower Allegheny valley gathered for luncheon arranged by the Bucktails, in the First Presbyterian Church at Clarion where approximately 200 listened to interesting talks by Mayor McNair, Leslie M. Johnson, director of Public Works, Senator Thompson, Senator Kahle and the writer. Space prevents recounting the many interesting remarks of the speakers, but they all agreed that the *Clarion River could and would be cleaned up when the public was sufficiently aroused to demand its God-given right to pure water.* While there was a fair representation of sportsmen such as Johnny Mock, who so ably champions pure streams in the *Pittsburgh Press*, Dr. Alexander, President of the Pittsburgh Chapter of the Izaak Walton League and President of the Allegheny Medical Society, and a number of other Waltonians, such as one would normally expect to find in any pure streams meeting, we were impressed by the presence of such a large number of business, professional and civic leaders, who had no direct personal interest in fishing. For once the responsibility for a pure streams movement did not rest solely on the shoulders of the fishermen and sportsmen, and as a result the polluters could not lightly dismiss it with their usual remarks about a few fish versus big industries.

In the afternoon the party continued on as far as Wilcox, stopping to go through the various factories and note their polluting effluents. If any of the party had put any credence in the absurd "oak leaf" myth, they quickly discarded it when they saw with their own eyes the millions of gallons of vile manufacturing wastes that are daily discharged into the upper waters of the river. Likewise the trip down the river that evening to a delicious dinner at Cook Forest Inn effectively disabused the minds of any who may have believed in the old myth about water purifying itself in running over seven stones or seven miles of stones or whatever the silly saying is.

Above Wilcox the West Branch of the Clarion is a clean trout stream of fair size, but at the upper edge of the town it receives its first pollution through a tributary on which a chemical plant is located. Below the junction of these two streams the big tannery at Wilcox blackens the entire stream. At Johnsonburg it is joined by the East Branch, a fine big trout stream whose dilution of pure water might go a long way toward neutralizing the pollution in the main river below, but right over its mouth stands one of the largest paper companies in the country, and the poisonous effluent from this plant, running in millions of gallons daily, rings the death knell for the Clarion River. From Johnsonburg to Ridgway the evil smelling river is about the color and consistency of a dishpan of very dirty dish-



WHEN POLLUTION STRUCK THE BEAUTIFUL KISHACOQUILLAS CREEK, MIFFLIN COUNTY TROUT STREAM, THOUSANDS OF TROUT AND OTHER FISH WERE SLAUGHTERED. AT THE LEFT, BELOW, IS SHOWN ONE OF THE COMMISSION'S TRUCKS FROM WHICH STOCKING WAS MADE BEFORE POLLUTION DID ITS WORK. SOME OF THE TROUT AND SUCKERS KILLED ARE SHOWN IN THE OTHER PHOTOS.



water with frequent large patches of yellow foam floating on its bosom.

At Ridgway the river receives the drainage of Elk Creek from St. Marys, which carries an additional load of pollution from a few old mines, another tannery, two carbon plants and a few other minor sources. Once more the dead river continues on its way, absorbing completely the pure water of several tributaries until it reaches Portland Mills. Here the yellow water of Little Toby Creek discharges its burden of sulphuric acid and iron from the old mining district around Brockway, where many of the mines contributing to this pollution have long been abandoned. The chemical reaction of this acid mine water on the already heavily polluted river is to turn the water blacker than ever so that it resembles a weak ink.

Below Little Toby Creek for more than sixty miles to its mouth there is no appreciable pollution entering the river, but the dose received in the headwaters is so severe that the river is not able to recover, and continues a dark dead thing throughout the length of its beautiful valley. We can think of no comparable valley in Pennsylvania more beautiful than that of the Clarion, and were it not for the black and offensive wa-

ter in the river, the valley would be one of the finest recreation areas, and the river itself one of the finest bass streams in the State.

As Senator Thompson so aptly said, "The pollution of the Clarion is political, but it is not partisan." When the public wakes up and realizes how its heritage to pure water has been bartered by unscrupulous politicians so that the special interests that they serve can make larger profits at the public expense, decent citizens of all parties will rise up and demand that this obnoxious and economically unsound practice of using the public streams for private sewers must cease. Mayor McNair's inspection trip has started the ball rolling in that direction, and we expect that it will gain considerable momentum after the second trip, which is planned for Labor Day this year.

In going through the gigantic paper plant at Johnsonburg we were greatly impressed with the elaborate manufacturing process and the large and complicated machines, some of which we were told cost \$800,000 a piece. We listened attentively to the description of the intricate manufacturing process and to the explanations of how difficult and impossible it would be to treat

the effluent so that it would no longer constitute noxious pollution to the Clarion. We could not, however, dismiss as unreasonable, the conclusion that if only ten per cent of the engineering, elaborate chemical research, real brains and planning that had evidently gone into the remarkable process of making paper from chunks of wood and into the machinery for its manufacture, had been devoted to a sincere study of removing the pollution from the resulting effluent, the problem would long ago have been solved.

Bass Chokes to Death on Prey

A giant largemouth bass 22½ inches in length and weighing 6½ pounds, was found floating on the surface of the Susquehanna River, near Harrisburg. It had choked to death on a mullet over 12 inches in length.

Discovery of the big bass was made by Ed Donner, stationed on one of the coal boats near the Capitol City, and was reported by Robert McCreath, owner of the boat. The bass was found on the morning of August 13.

John C. Mock Describes Drive on Watersnakes

Courtesy "ALL OUTDOORS," PITTSBURGH PRESS

WE go a'snakin'. Two hundred and three, multiplied by fourteen, divided by twelve, according to the last of the three "Rs" of school days, equals something around two hundred and thirty-seven, not counting the left-overs. That would be the approximate length in feet of a watersnake killed last week along French Creek—if all those killed were placed end to end along the bank.

"Charley" French, Fish Commissioner of Ellwood City and John Kimmich, fellow citizen and fishin' pal, "Pete" Krass, vice-president, Allegheny County Sportsmen's League; Harry Depp of the Crafton-Ingram outfit and the writer met at the junction of 488 and 19 shortly after nine on our way to reduce the number of these destructive pests. Having crossed the "Conny" at Harmony on the way the trip looked useless for the Connoquenessing was high, wide and muddy. With several heavy downpours during the previous night the stream had crept considerably above its normal level. The same condition existing at French Creek meant no snakes. Still, it meant a day in the open we all love so well so we continued on in hopes.

Passing over Muddy Creek we found it failing to live up to its name and Slippery Rock just slightly roiled. "The storms must have been to the south," suggests Depp. Mercer, after stopping a moment at the ol' fishin' hole on the Neshannock, clear as crystal.

Looks good!

Otter Creek, then Coolspring Creek. Next the Big Sandy on route 62 just out of Sandy Lake and on towards Polk and the Little Sandy. The further up we drove the clearer became the streams. We all pile in the one car and start over the cinder road towards Utica.

The Fun Begins

Our first view of French Creek indicated a day's sport ahead. The stream was in almost perfect condition and the ol' hay-maker began to creep from behind the clouds, warming up to our game. We pull in at our usual No. 1 stop, a few miles north of Dixie on the Erie. Shoes are discarded and boots are donned, each arming himself with a stout shillelah, ready for the fun to begin. Kimmick carries a .22 rifle to take care of those beyond reach of the "war clubs."

The first on the list measured an even 33 inches, which John neatly picked from a nearby willow. Three fish, in various stages of digestion were dislodged from its stomach, proving that little time is lost between its meals.

"Charley" and the writer work downstream. "Pete" and Depp cross to several weed-grown islets while John slowly works his way up the creek. "Here's one!" says French, as he turns over a stone, the hiding place of a youngster of last season.

"Whack. Whack." No fish will find its way through the distended jaws of this one. "Here's another, and another." Merrily the game goes on. "Whack, biff, bang." You've heard the old saying "No stone will be left unturned." Probably originated among snake hunters for beneath them lie the snakes. No overhanging tree, shrub or bush is passed without the most minute examination. Some of the larger fellows will make immediately for the creek while others remain perfectly motionless, seemingly knowing that to remain so will prevent them from being discovered but they don't escape the sharp eyes of the commissioner.

Get a Big One

"Oh boy, look at that fellow there!" whispers he. Coiled over a root lies a mon-

ster. We step towards the water's edge to head him off while "Charley" springs into action, his club upraised, ready for the blow that would end the existence of this destroyer. "Wham." He drops from his perch, his back broken, striking viciously in every direction. The second blow did the work. Forty-four inches in length. A real snake. Opened, we discovered that it had just dined on an eleven inch wall-eyed pike, caught sometime during the night, digestion having not begun. Working back upstream to meet the others we discover a soft-shell turtle with its curiously round-shaped and black-dotted shell, its head gone. "Probably shot by someone," suggests "Charley" as we discuss the way its end was met. A pair of mallards wing their way south—heading the wrong direction according to the dope.

"How many?" asks "Pete," as we rejoin them. "Twenty-one," we answer. "How'd you fellows do?" "Twenty-seven," replies Depp. "And you, John?" "Seven," was Kimmick's answer. Not a bad start, fifty-seven on the first "drive." We move on to the next location. "Pete" and "Charley" teaming while Depp and the writer are ferried across the stream in a flat-bottomed scow someone was kind enough to leave unlocked. First honors go to Harry—the lucky dog, as he uncovered a den of five. For a moment he was all arms and legs, "whacking" and kicking away at the squirming reptiles. One almost reached the haven of safety, the last blow splashing muck and water all over Harry but he got the snake and what's a little muck among snake hunters, anyway?

Two more for Depp. We didn't like that one bit. Seven for him and none for us. We get down to real business. "Ah, there's number one." "Biff," and it's all over. There's number two, as we turn over a "lucky" stone of our boyhood days, only this one would have been much too large to carry in the hip pocket. We soon have the bar cleaned of its crawling denizens then sit

down to wait for the scow to transport us back.

Meanwhile we become interested in a "sunny" doing guard duty at its nest. Back and forth, he continued, ever watchful for any enemies that may approach. A school of minnows gives him a wide berth, on its way upstream. A good sized chub approaches too close and is chased from the immediate neighborhood by the "sunny." Back again to continue his guarding of the spawning bed.

We hear the "ping, ping" of Kimmick's rifle, then see him hold up what seemed to be a dandy. The other two return with the craft, having succeeded in killing fourteen. John got six and with the eleven we killed our count continued to grow. The sun was getting warmer; luck was with us.

A New Start

We stop for liquid refreshments, aqua pura, if you please, as it gushed from the bosom of Mother Earth. We meet J. H. Hall of Seneca, the local fish warden and stop long enough to have a pleasant chat. "How're they bitin'?" is his first question. "They aint bitin', that is they aint bit yet but they are sure doin' a lot of squirming," replies Depp. "Oh, I see," says Hall, "snake huntin'," noting the absence of fishin' tackle and the "headache makers" in our hands. "Well, we certainly got enough of them. It's too bad that not more of the boys take an active interest in destroying these predators. It would pay them in better fishing."

We leave Hall to his patrolling and move on upstream to where the largest number were killed the season before, a long, favorite bar having an eastern exposure. We work together, one working inshore, just off the water's edge, one, turning over the rocks at the water's edge and two in the stream to scoop out the babies as they fled from their hiding places. Fourteen were accounted for within a very few minutes. For over an hour the fun continued, snake after snake meeting its doom, some with "whacks" from the "war clubs" and others from the heels of the boots. There were little ones and big ones, thin ones and fat ones, the latter those that had just dined on the "stringer filler." In every case, where one was opened the contents were fish. Frogs were seen in goodly numbers yet none were noted in the stomachs of the snakes, probably because the frogs were always one jump ahead of the snakes.

Bass bait, the helgramite, almost every stone harbored one and in some cases two. Now that we couldn't use them they were plentiful—later on in the season—well, you fellows know the story. The banquet table of raccoons, the empty clam shells covering quite an area. The skeletons of several waterdogs, the large head and the narrow backbone making them readily identified.

Pollution Again

Dead fish lining the bar, telling evidence of the pollution of French Creek, at Meadville, several days before. And with the mention of pollution we wish to add that at last Pure Streams Bill No. 273 has been reported out of the Senate Committee, due to the splendid fight made for it by Senator Ben Thompson, of New Kensington, its sponsor, and O. M. Deibler, Commissioner of Fisheries.



PHOTO BY LA MAR MUMBAR.

A GIANT WATERSNAKE

The bar cleaned as clean as possible the count of snakes totaled 167. "Let's try for two hundred," suggests "Charley." "O. K.!" we all agree, moving up to Mill Creek. Below the mouth we discover a black sucker, twenty-two inches in length, lying in the cool, sweet water of the tributary. More evidence of the pollution. "Pete" does his stuff with the movie camera. Depp spies a huge snake which drops into the water before any of the party had a chance to get at it. "We'll get him coming back," soothes French as we moan about his getting away. Kimmick decides to wield the rod for a few trout, leaving us to the snakes or the snakes to us, whichever way you'll have it.

"A snake in the water" is just as detestable as one in the grass. Two hundred and three times two for those on the opposite shoreline, times the miles of stream in Pennsylvania equals the number of snakes. Multiply this by 500 fish, the approximate number consumed by an average watersnake, per season and your answer will be—want better fishing? then kill the watersnake.

PIKE COUNTY ANGLER NOTES

Warden Frank Brink of Milford, Pike county, reports varied catches from his section, one of the best fishing areas in the State.

During the last week of the trout season, Boots Stickler of Reading landed four fine brown trout from Twin Lake brook. The fish were 18 inches, 18½ inches, 19½ inches and 20½ inches respectively in length, the largest weighing three pounds.

One of the nicest smallmouth bass reported was taken on fly by F. C. Rohwerder of Jamaica, N. Y. Using a 4½ ounce rod, he landed a smallmouth measuring 19½ inches in length and weighing 3 pounds, 14 ounces, in addition to several other nice bass.

The two largest pickerel taken from Pecks Pond this season were 28 and 26 inches in length respectively.

While patrolling the upper Delaware on

July 23, Brink says he met five Pittston anglers who had a total catch of 36 bass, all over 10 inches in length. The largest fish in the catch measured 16 inches.

TWO BIG LARGEMOUTHS

Carl Walters, of Fishertown, Bedford County, caught the 23-inch 6½ pound largemouth bass, listed under Raystown Branch fishing last month, in Lake Gordon. Nazlerod, whose name was mentioned twice in this connection, caught a bass of the same length in the same body of water. Walters made his catch on fly and spinner and is one of the expert fishermen of Bedford County. He is Secretary of the Bedford County Federation of Sportsmen.

Close Shave for Finger

Ed Rodkey of Brisbin has a definite respect for the size and savagery of a certain big fish in Kephart dam, Centre County, according to Warden Dave Dahlgren of Philipsburg.

While fishing in the dam on May 28, his hook became snagged in a log. When he reached under the log to loosen the hook, a fish of mammoth proportions made a pass at his hand and just missed getting away with one of his fingers.

It is thought probable that the fish in question was one of the big pickerel for which Kephart dam is noted. At any rate, it was a hair-raising experience as Ed will tell you.

FISHERMAN'S DREAM REALIZED ON BIRTHDAY

William Bower, of 1245 Brion Place, South Williamsport, had a very nice birthday anniversary yesterday, thank you!

It was marked by an experience such as the fisherman is always dreaming about. Mr. Bower probably has indulged in such dreams, picturing himself catching a big

fish. His birthday anniversary was a nice time to have the dream realized.

Fishing in the "wide waters" of the old canal, east of Montoursville, Mr. Bower hooked and landed, after a brisk and thrilling battle, a largemouth black bass which measured 21 inches and weighed four and one-half pounds.

The fish, displayed today at the sporting goods store of Steiger Bros., attracted much admiring attention.

—Williamsport Sun.

ANGLER READERS—ATTENTION!

A statement that slipped through in the ANGLER last month has stirred considerable comment, so here goes in putting it straight.

Under the section of "Bass Baits and Lures" covering stone catfish, a method used years ago, namely that of securing these bait fish through stunning, was mentioned. This method of taking any kind of fish in Pennsylvania inland waters is definitely not legal, under our present fishing laws.

Stone catfish, minnows and other bait fish may be legally taken only by three methods. The first of these is with a minnow net not over four feet square or four feet in diameter. The second is by hook and line fishing, a fisherman to use not more than two rods and lines with not more than three hooks attached to each line. Rods, hooks and lines must be under the immediate control of the person using same. The third method is by a minnow trap, having not more than one opening which shall not exceed one inch in diameter.

PICKEREL CATCH

Jackson Tucker of St. Marys and Harry Wilson of Bradford made a nice catch of pickerel during July in a pond near Cameron, according to Warden J. Albert Johnson of Bradford, McKean county. Seventeen fish, ranging in length from 14 to 22 inches, were landed.

ARTIFICIAL LURES WIN CONVERTS AT LEHIGH MEET

Scores of converts to the use of artificial lures in the gentle art of angling were made at the recent field day of the Lehigh County Fish and Game Protective Association at Dorney Park, near Allentown, when Art Neu of Orange, N. J. former national tournament fly casting champion, gave an exhibition of the science of fly and plug casting before a crowd of over 2500 devotees of the sport. Mr. Neu was brought as a surprise but welcome visitor by Kenneth A. Reid, member of the State Board of Fish Commissioners, and himself an expert fisherman. Mr. Reid conducted the fly casting contest in which Alton L. Best of Allentown, came out victor for both distance and accuracy, scoring 70 1/3 feet in the former and a percentage of 94 in the latter. His runner up in accuracy was Richard Wagner with a percentage of 68 2/3. G. J. Grantz was second in the distance match with a record of 92 feet. Wagner took third place in the distance contest and F. A. Brown was third for accuracy. There were many other entries and all showed splendid skill in the art. The contest was managed by Fish Warden C. Joel Young.

Mr. Neu showed by demonstrations how easy it is with a little practice to become a skillful fly and plug caster and what thrills can be extracted from this form of fishing.

Featuring the field day program was a live trout contest, in which 500 brookies and brownies measuring all the way from 11 to 18 inches, figured as the game. They had been placed a few days before the picnic in a 300-foot stretch of Cedar Creek and it was the "business" of the entrants to show how many of the fish they could catch in a ten-minute period. A prize was also awarded for the largest fish. Barbless hooks were used and contestants were permitted to keep the first fish caught only, the rest being returned to the water and at the close of the season, placed in Dorney Park dam for fishermen to catch next season. There were more than 80 entries in the contest, the prize winners being Robert Williams of Bethlehem, for the largest fish caught, an 18-incher, and Paul Zimmerman of Allentown, for the most fish caught in the ten-minute period. His record was six fine specimens.

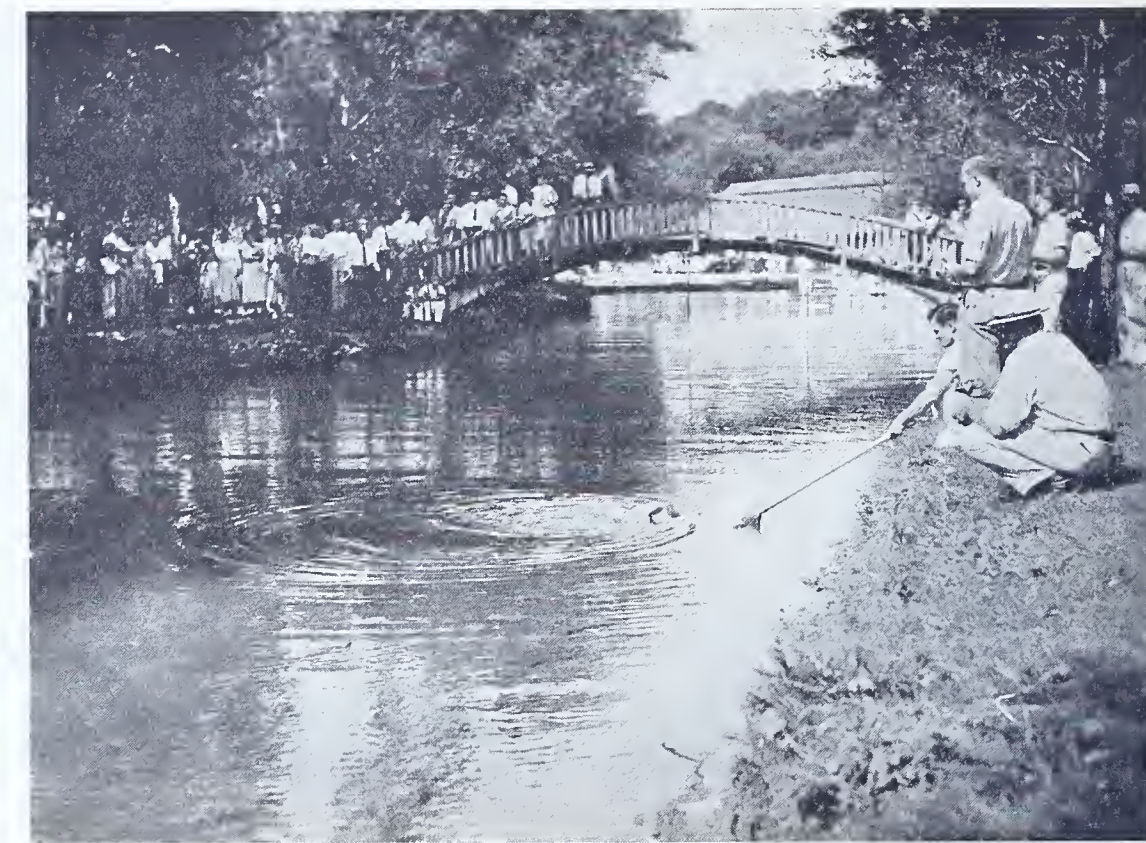
Other events on the day's program were balloon shooting, blue rock matches, hot water boiling contests and events for the women and children.

The Lehigh County Association is planning for another of its big nights at Dorney Park on October 11, when there will be a big program of pictures and other events of interest to sportsmen.

RELEASES LITTLE BASS, LANDS BIG ONE LATER

A certain young angler, Warden Horace Pyle of Coatesville didn't tell us his name, is firmly convinced that it pays to practice good sportsmanship while fishing.

"On July 4," writes Pyle "while patrolling at Wagontown on the west branch of Brandywine Creek, I came across this boy, who was 11 years old. He had in his possession three sunfish, a rainbow trout and a smallmouth black bass about six inches long. The fish were in a live net and still alive.



SCENE SNAPPED DURING LIVE TROUT CONTEST AT LEHIGH OUTING. ANGLER WILLIAMS, BETHLEHEM, LANDS A 19-INCH RAINBOW.



GROUP AT OUTING—LEFT TO RIGHT: BOB PLARR, PRESIDENT, AND GEORGE ZIMMERMAN, SECRETARY OF THE LEHIGH ASSOCIATION; KEN REID, BOARD MEMBER, ART NEU, CHAMPION FLY-CASTER, MILO MILLER, TREASURER OF ASSOCIATION, WALTER LESKOSKI, VICE-PRESIDENT AND JOEL YOUNG, CHAIRMAN, LIVE FISH COMMITTEE.

So I talked to him, explaining the law and also tried to show him that in order to have big fish we must protect the little ones. Then I asked him to release the little bass, which he did and promised not to keep any more small ones.

"On Monday, July 15, this boy caught a smallmouth bass measuring 15 inches in length and weighing two pounds. He was the proudest boy in this section and I am

convinced he will be one of our conservationists from now on."

"SUNNY" CATCHES

Franklin County waters have been furnishing good fishing for sunfish this year, according to Bill Keebaugh of Hustontown, Fulton County. In one day's fishing, Dane Richards of Mercersburg caught 25 big sunnies and the next day landed 20.



SETH SAYS

Ef I was ter say jest what critter kills most fish in a year, I'd put the snappin' turtle at the head o' the list. A fair-size snapper is one o' the slickest fishermen a feller kin see.

They lay quiet-like on the bottom 'longside a patch o' grass or weeds an' when a fish swims over 'em, the long neck shoots the ugly head up like lightnin' an' tain't often a fish is missed. Once them jaws clamp down, all tarnation don't seem to make 'em loosen up.

I ketched me a right big snapper one night last month. It was in the dark o' the moon, so I figgered mebbe I could get me a few eels over to the crick. There wasn't no trouble gittin' bait, fer over by the run back o' the barn, I hossed out some fair size chubs with a minnie hook. Then I rigged up the cane pole, took some heavy eel hooks an' headed fer the deep hole below the mill dam. I sorter like night fishin' with hook an' line once in a while, fer out along a crick there seems ter be plenty o' life. The bullyrums a chuggin', every so often a horned owl lettin' out thet skeery call o' his er mebbe the squall o' a rabbit one o' them killers hes ketched keeps a feller's nerves sorter keyed up.

Well, I baited up with one o' the chubs. I carry a sharp notched stick, fasten the line to it, an' run it through the chub bringin' it out the mouth, then I fasten on the hook an' pull it up tight so thet the bait is hangin' head-first with a sort o' twist in it.

I jest got started fishin' right when I ketched an eel thet weighed about two pounds. Right after thet, mebbe fifteen minutes, my pole jerked inter the water an' I hooked this here snapper. He pulled like all tarnation, but the line held an' after tusslin' mebbe twenty minutes with him I hauled him in. He'd a went fifteen pounds, ennyway, an' I hed Jerry Tims in ter help eat snapper soup next night. Jerry claims there jest ain't no better eatin' then snapper soup when it's made right. An' he ain't far wrong, neither.

When I ketches a snapper, I ginerally figger thet I've saved consid'able fish, an' thet's what counts, to my mind.

TROUT AND BASS STOCKED IN JULY

Of 173,100 fish of the various species distributed from the Fish Commission's hatcheries during July, 29,960 were brown trout from 8 to 12 inches in length, 37,750 brook trout, 6 to 10 inches, 98,750 brook trout fingerlings, 3,640 rainbow trout averaging 9 inches and 3,000 black bass fingerlings.

Following were the waters stocked in the various counties:

Armstrong—brook trout, Mill Run or Rinker Run tributary to Cowanshannock Creek.

Beaver—brook trout, Brandy Run or N. Brandy Run tributary to Beaver River; large mouth black bass, Fombell Reservoir.

Bedford—brown trout, Wills Creek tributary to Potomac River, Yellow Creek tributary to the Raystown Branch Juniata River,

er, Cumberland Valley Run tributary to Raystown Branch of Juniata River, Buffalo Creek tributary to Raystown Branch Juniata River.

Blair—brook trout, Bobs Creek tributary to Dunning Creek.

Bradford—brook trout, Millstone Creek tributary to Schrader Creek. Schrader or Schroder Creek tributary to Towanda Creek. Daggett Creek tributary to Seeley Creek.

Butler—brook trout, Black Run or Jacksville Run tributary to Slippery Rock Creek. Chauncey Run or Chances Run tributary to N. Branch Bear Creek.

Cambria—brook trout, S. Branch Black Lick Creek or Upper Black Lick Creek or Williams Run tributary to Black Lick Creek. Stewart Run tributary to S. Branch Black Lick Creek.

Carbon—brook trout, Quakake Creek tributary to Black Creek, Hunters or Yeagers Creek tributary to Buckwa Creek, Buckwa Creek tributary to Aquashicola Creek. James Run tributary to Nesquehoning Creek, Fawn Run tributary to Lehigh River, Hayes or Black Creek tributary to Lehigh River; brown trout, Pohocopo or Big Creek tributary to Lehigh River, Wild Creek tributary to Pohocopo Creek; rainbow trout, Big Bear Creek tributary to Lehigh River.

Centre—brook trout, Black Bear Run tributary to Moshannon Creek. Pine Creek tributary to Penns Creek, Roaring Run or Dry Run tributary to Little Fishing Creek; brown trout, Penns Creek tributary to Susquehanna River, Spring Creek tributary to Bald Eagle Creek, Elk Creek tributary to Pine Creek, Little Moshannon or Black Moshannon Creek tributary to Moshannon Creek.

Chester—brown trout, White Clay Creek tributary to Christiana Creek.

Clarion—brook trout, Mill or Big Mill Creek tributary to Clarion River.

Clearfield—brook trout, Wilmer or Witmer Run tributary to Clearfield Creek, Deer Creek tributary to W. Branch Susquehanna River. Bennetts Branch tributary to Sinnemahoning Creek, Moshannon Creek tributary to W. Branch Susquehanna River, East Branch Muddy Creek, Paige or Paige Draft tributary to Red Run (Susquehannock State Forest Dist.), Gifford Run tributary to Mosquito Creek; brown trout, Mosquito Run tributary to W. Branch Susquehanna River, Laurel Run tributary to Bennetts Creek.

Clinton—brook trout, Big Fishing Creek tributary to Bald Eagle Creek, Tangascootack or Scootack Creek tributary to W. Branch Susquehanna River, Cedar Run tributary to Big Fishing Creek, N. Branch Tangascootack or N. Fork Scootack Creek tributary to Tangascootack Creek; brown trout, Antis or Rauchs Creek tributary to Nippennoise Creek, Young Womans Creek tributary to W. Branch Susquehanna River.

Columbia—brown trout, Fishing Creek tributary to N. Branch Susquehanna River.

Cumberland—brown trout, Yellow Breeches Creek tributary to Susquehanna River, Mountain Creek tributary to Yellow Breeches Creek; rainbow trout, Means Run or Middle Spring Run or Bird Run or Cato Run tributary to Conodoguinet Creek, Furnace Run Dam on Furnace Run or Furnace Hollow Run.

Dauphin—brown trout, E. Branch Rattling Creek tributary to Rattling Creek;

rainbow trout, Clarks Creek tributary to Susquehanna River.

Elk—brook trout, E. Branch Spring Creek tributary to Spring Creek, Two Mile Run tributary to Tionesta Creek, Hunter Run tributary to Spring Creek (Allegheny National Forest), Big Run tributary to Spring Creek, Belmuth Creek tributary to Little Toby Creek (Pa. State Game Land), Bear Run tributary to Little Toby Creek, Wilson Run tributary to W. Branch Clarion River.

Fayette—brook trout, S. Fork Mountain Creek or Pine Creek or Brownfield Run tributary to Mountain Creek.

Forest—brook trout, Hemlock Creek tributary to Allegheny River, Spring Creek tributary to Clarion River, Salmon Creek tributary to Tionesta Creek, Little Salmon Creek or Indian Doctor tributary to Salmon Creek (Allegheny National Forest); brown trout, W. Branch Millstone Creek tributary to Millstone Creek.

Franklin—brown trout, W. Branch Conococheague Creek tributary to Conococheague Creek.

Indiana—brook trout, Mudlick Run tributary to Little Mahoning Creek; brown trout, Yellow Creek tributary to Two Lick Creek.

Juniata—brown trout, Lost Creek tributary to Juniata River, Licking Creek or E. Licking Creek tributary to Tuscarora Creek.

Lawrence—brown trout, Little Neshannock Creek tributary to Neshannock Creek.

Lehigh—brook trout, Little Lehigh River tributary to Lehigh River, S. Branch Soucon tributary to Soucon Creek, Soucon Creek tributary to Lehigh River (This is an unimproved stream); brown trout, Little Lehigh River tributary to Lehigh River, Cedar Creek tributary to Little Lehigh River.

Lycoming—brook trout, Spring Creek tributary to White Deer Hole Creek.

McKean—brook trout, Comes Creek tributary to Portage Creek, Fifi or Mead Run tributary to Kinzua Creek (Allegheny National Forest); brown trout, S. Branch Kinzua Creek or Water Mill Creek tributary to Kinzua Creek, E. Branch Tionesta Creek tributary to S. Branch Tionesta Creek.

Mercer—brown trout, Little Neshannock Creek tributary to Neshannock Creek.

Mifflin—brook trout, Licking Creek or E. Licking Creek tributary to Tuscarora Creek.

Monroe—brook trout, McMichels Creek tributary to Pocono Creek, Tobyhanna Creek tributary to Lehigh River, Big Bushkill Creek tributary to Delaware River, Middle Creek tributary to Pohocopo Creek, E. Branch Tobyhanna Creek or Dresser Run tributary to Tobyhanna Creek, Forest Hill Creek or Sullivan Creek or Rimber Hill Creek tributary to Paradise Creek, Dotters Creek tributary to Middle Creek, Buckwa Creek tributary to Aquashicola Creek; brown trout, Broadheads Creek tributary to Delaware River, Lehigh River tributary to Delaware River.

Northampton—brook trout, Martins Creek tributary to Delaware River, Waltz Creek or Delado Creek tributary to Martins Creek, Indian Creek tributary to Hokendaugna Creek; brown trout, Buchkill Creek tributary to Delaware River.

Schuylkill—brook trout, Black Creek tributary to Swatara Creek, Sugar Loaf Run tributary to Big Catawissa Creek.

Potter—brook trout, Lyman Run tributary

to W. Branch Pine Creek, Little Kettle Creek tributary to Kettle Creek, Corbit or Smith Branch tributary to W. Branch Pine Creek (Susquehannock State Forest); brown trout, Mill Creek tributary to Allegheny River, Allegheny River tributary to Ohio River.

Somerset—brook trout, Breastworks Run tributary to Deiters Run, Big Piney Run tributary to Casselman River, Sandy Run tributary to Laurel Hill Creek; brown trout, Raystown Branch Juniata River tributary to Juniata River, Laurel Hill Creek tributary to Casselman River, Flougerty Creek tributary to Casselman River, Whites Creek tributary to Casselman River.

Sullivan—brook trout, Sullivan Branch tributary to East Branch Fishing Creek, Ogdonia Creek tributary to Loyalsock Creek, Muncy Creek tributary to W. Branch Susquehanna River, Rock Run or Rocky Run tributary to Muncy Creek, Glass Creek tributary to Loyalsock Creek, Mill Creek tributary to Loyalsock Creek.

Tioga—brook trout, Fall Brook tributary to Tioga River; brown trout, Pine Creek tributary to W. Branch Susquehanna River.

Union—brook trout, Spruce Run tributary to Buffalo Creek, White Deer Creek tributary to W. Branch Susquehanna River, Bear Run tributary to Laurel Run; rainbow trout, Halfway Dam or Fourteen Mile Narrows Dam.

Warren—brook trout, Queen Run tributary to East Hickory Creek.

Westmoreland—brook trout, Roaring Run tributary to Indian Creek, Pike Run tributary to Roaring Run, Powder Mill Run tributary to Baldwin Run, Shannon Run tributary to Conemaugh River, Indian Creek tributary to Youghiogheny River; brown trout, Tub Mill Run tributary to Conemaugh River, Jacobs Creek tributary to Youghiogheny River, Lynn Run tributary to Loyalhanna Creek.

Wyoming—rainbow trout, Bowman Creek tributary to N. Branch Susquehanna River.

FINDS 10-INCH TROUT IN BIG WATERSNAKE

S. F. Wetzel of Sunbury is an ardent advocate of the watersnake killing campaign inaugurated by the Fish Commission. In the following interesting letter he tells of two incidents that he observed recently on central Pennsylvania streams.

"Recently while fishing in White Deer Creek I killed a large watersnake about three feet long. On cutting it open I discovered it had swallowed a trout almost ten inches long, partly digested but was still able to tell it was a trout. I'll bet that reptile caught more trout than the average fisherman the past several years.

"A few years ago while fishing in Middle Creek I saw two snakes each about 20 inches long coming toward the shore side by side and both had hold of the same fish, one near the head and the other near the tail. Killing both snakes I put the fish, a black bass about four inches long, back in the water unharmed. I wish every fisherman would appreciate the damage these reptiles do to our sport and make every effort to destroy them whenever possible."

SELLS FLIES TIED BY WETZEL METHOD



Fly tying, as described by Chas. M. Wetzel in recent issues of the *ANGLER*, can be made profitable as well as pleasant, Clayton L. Peters, secretary of the True Sportsmen's League of Lykens, tells us.

His letter follows:

"After having read and reread the articles on fly tying by Mr. Chas. M. Wetzel, digesting every word, and finally carefully filing them away for future reference, I decided to get down to the art of making flies for my own use, and what happened seems almost unbelievable, but nevertheless true.

"This season I sold over fifteen hundred trout flies, several patterns, of which I originated but tied on the principles taught by Mr. Wetzel in his articles.

"I am mighty proud to say that the flies I sold were a major factor in keeping me off of the relief rolls, so you should not wonder why I am elated over my success with fly tying.



MR. PETERS' SON AND THE SPRING CREEK BROWNIE.

"In developing patterns of my own, I tried to follow as closely as possible the markings of the live insect I was about to

imitate and I am sure I have accomplished this with a marked degree of success.

"One day early in the trout season one of my friends asked me to tie something to imitate a native minnow, and I set to work making bucktail minnows and trying them out on trout in our local streams until I have developed a pattern of bucktail that actually does take trout when they are feeding on the live minnow.

"I had the pleasure of visiting the Spring Creek project for a few days over July Fourth and enjoyed every moment of the time I spent there.

"I think the maintenance of such a place is an inspiration to every red blooded citizen and we should be mighty proud of our Fish Commissioners for trying to inculcate into the minds of our fishermen the real meaning of true sportsmanship.

"One of the reasons for visiting the project was to try some of my artificial creations on big brown trout and I found it an ideal place for the experiment.

"After having helped my twelve year old son get his equipment ready to fish, I engaged myself getting ready to try out my latest bucktail pattern, and before the echo of the siren had completely faded my son called for the landing net and you can imagine my amazement when I finally landed his trout for him, a scrappy sixteen-inch brownie. I don't know who was the happier, the son or myself, he, because he had caught a beautiful trout, or myself because he had caught it on my favorite pattern bucktail."

BIG BROOKIES TAKEN ON NORTHERN TIER

The following interesting communication from a North Tier fisherman was received recently by the *ANGLER*.

"Thought you might like to hear something about fishing conditions in the north central counties.

"The trout season just closed has been unique in several ways. There have been more large brook trout taken than at any time in my memory. I have my own explanation for this and I wonder if you agree.

"Of the stocked trout each year, there is a percentage that have escaped the fisherman, probably living in some very hard place to fish or for some other reason, and these fish have grown to 12 or 15 inches in length and one of them does make a creel look fine. July 18 I took three from Phoenix Run one 12½, one 13¼, and the other 14 inches. That in one hour's fishing after a hard day in the hayfield makes a farmer a booster for his fish department.

"I have fished north tier trout streams for thirty-five years and have taken the limit when it was 40, but have never taken as fine trout in my life as I have caught in the past season.

"High water has held up bass fishing so far this season particularly in the North Branch; some nice bass have been taken from Pine Creek but it is still too high for good fishing. September and October are the big months for bass fishing in Pine. Bass have not traveled as far upstream as usual this year due to high water in the trout brooks holding temperature down, but I am expecting that fishing in the months I men-

tioned will be very good on the lower 40 miles of water.

"Kettle Creek was disappointing last year but many of the big crop of small bass should be legal this year and should give a great deal of good fishing.

"About 75 per cent of the stream improvement work on trout streams vanished with the spring floods. V-type deflectors and logs anchored to the bank are about the only practical types for these fast flowing streams."

BEDFORD SPORTSMEN IMPROVE STREAMS



Ranking as one of the most active sportsmen's associations in the State is the Morrison's Cove Game, Fish and Forestry Association of Ore Hill, Bedford county. The members of the association have been pioneering in fish and game conservation since its inception under the leadership of Dr. Clarence Snyder, who now resides in Arcadia, Ohio, according to Ernest Miller, secretary. The free corn boil, sponsored by the association, is an annual event looked

forward to by sportsmen of Bedford county every year. It was held this year in Appleman's Grove near Baker's Summit on Wednesday evening, August 21, and was well attended.

Stream improvement, centering on Potter Creek, a fine brook trout stream, has been a feature of the work of the Morrison's Cove sportsmen. To the association goes the honor, according to Miller, of building the first Deibler dam in Bedford county. Accompanying cuts show the dam and men at work in improving the stream. The farmer, whose land the improvements were placed on, donated time, labor and material to the better fishing cause.

"Lord Baltimore" Magic

Eight year old Peter Gross of Laceyville, Wyoming County, doesn't need fancy fly fishing tackle when it comes to taking bass on the feathered lures, according to Warden Myron Shoemaker. On a recent fishing trip with his father and several companions, Peter demonstrated just how it can be done.

"The other anglers caught several fish," writes Myron, "and Peter asked his father for a line to try his luck. No rod was available, so a piece of brush was cut along the shore, trimmed, and a short piece of line, plus a Lord Baltimore fly attached to this strange equipment. When it was time to go home, Peter had 16 black bass and rock bass combined, and had kept his daddy busy taking the fish off the hook. Since that night, there has been quite a demand on a local fishing tackle dealer for Lord Baltimore flies."

LANCASTER ANGLERS MAKE NICE CATCHES

Lancaster and Lebanon county bass waters have been providing good catches this season, it is reported by Warden Frank Sanda of Steelton. While muddy water interfered to considerable extent with bass fishing in the Susquehanna and many other streams this summer, the first week of the season when the water was clear provided good sport.

Dickie Long, Columbia, 12 years old, caught a largemouth weighing 2 pounds, one ounce, in the Susquehanna River. Dr. W. C. Wainwright of Lancaster, while fish-

ing in Safe Harbor dam on the Susquehanna caught 8 wall-eyed pike and one bullhead catfish. The nine fish weighed, dressed, over eight pounds.

MIFFLIN COUNTY SPORTSMEN PLAN WATERSNAKE DRIVE

The Kishacoquillas Valley Sportsmen's Association held a summer meeting at Greenwood Furnace. Thirty-three members partook of a delicious ham and egg supper. Before supper the members participated in various sports consisting of mush-ball, horse shoes, swimming and pistol target practice.

An invitation was extended by the McVeytown members to hold the October meeting at the Y.M.C.A. camp near McVeytown. This invitation was gladly accepted by the association and elaborate plans were made for this outing. In connection with this meeting a field trial will be held for bird and rabbit dogs. A committee consisting of Wilbur Steinbach, Walter Wilson and Richard Rodgers all of Lewistown was appointed to make final arrangements for this event. Also the same day a clay pigeon shoot is being sponsored by the club and W. M. Sweigart of Belleville was appointed chairman of the committee to arrange for this shoot.

It was decided at this meeting to sponsor a drive against watersnakes, one of the most destructive predators to fish that exists. The club will cooperate with the Fish Commission in this drive and is offering a medal to all boys who kill ten of these snakes and report same to a reliable person. This medal is being offered by the Fish Commission and is a beautiful bronze medal on which the owners name appears with the wording "Junior Conservationist." All boys reporting the kill of ten watersnakes to the Kishacoquillas Valley Sportmen's Association will receive one of these medals.

BRADFORD LARGEMOUTHS

Lakes in Bradford county are furnishing some good catches of largemouth bass this year, according to Warden Myron E. Shoemaker of Laceyville. While fishing in Spring Lake recently, Ben Skinner of Wyandoming landed two fine bass of this species. One weighed two and one-half pounds, the other four and one-quarter pounds.

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HERE ^A_ND THERE IN ANGLERDOM



Reports of big brown trout are still being received by the ANGLER. Lloyd Barger of Wood while fishing in Little Fishing Creek, Lycoming county, according to Special Warden Bill Keebaugh, caught a brownie measuring 26 inches in length and weighing six pounds. The catch was made in June.

High and muddy water in many bass streams throughout the State retarded bass fishing during August. Until the latter part of August, the Juniata River and its famous tributary, the Raystown Branch, were almost continuously muddy. This factor in many waters presages some of the greatest September and October bass fishing in recent years.

One of the finest smallmouth bass to be reported this season is that taken by Albert Shabokis of Minersville in Wentzel's dam on Sherman's Creek, Perry county. The bass weighed dressed, according to Warden Charlie Long of East Waterford, four pounds and three ounces. Long also reports that nine-year-old Ross Kirk of East Waterford caught a pickerel measuring 20½ inches in Tuscarora Creek.



MISS FRANCES EICHLER OF LAURYS WITH 30-INCH, 6½ LB. WALL-EYE PIKE. SHE MADE THE CATCH IN LAKE WALLENPAUPACK.



HUBERT EARLE, SON OF THE GOVERNOR, WITH TWO BIG RAIN-BOW TROUT HE CAUGHT.

Billie Pickett and T. V. Lewis of Laceyville made a catch of 17 bass on August 10 in Wyalusing Creek. Billie scored two doubles, one with two 12-inch bass, the other with a brace of 10-inchers. He was using helgramites as bait.

Mrs. C. F. Mier of White Haven caught a fine creel of brook trout, ranging from 7 to 10 inches, in Mud Run, on June 17.

Clair Sipler of White Haven caught two brook trout, the largest one measuring 16½ inches and weighing 2 pounds and 2 ounces, the smaller one measured 15½ inches and weighed 2 pounds, in a beaver dam on Masons Creek, on June 7.

Lyman Wagner of White Haven caught a brown trout measuring 23½ inches, weight 4 pounds and 2 ounces, in the Lehigh River on June 5.

Is This A Record?

To catch a fish more than half the size of the angler is a feat worth recording in the annals of piscatology, according to George Zimmerman, secretary of the Lehigh County Fish and Game Protective Association, who contributes this unusual story. The hero of the narrative is Harold Shellhammer of Dorneyville, near Allentown. Harold is eleven years old and for the purpose of detail it should be mentioned that he is 45 inches tall. Well, Harold was fishing in Cedar Creek near Dorney Park during July, and they weren't biting so good until toward noon, by which time his little tummy was feeling the pangs of hunger. However, he had faith with a big "F," so he decided to stick to it for a while longer. Finally, he felt a mighty tug on his line and when it was all over he had, single-handed, landed a monster brown trout, which, when measured, was found to be 23½ inches long (more than half as long as Harold, you will notice) and weighing 4½ pounds.

It is recorded that he ran home a mile away, and threw the fish on the kitchen table before his much surprised mother, crying out as he did so, "Mom, I don't know whether I dare keep it, but it's a dandy."

Needless to say, Harold kept the fish, and has suddenly become Piscatorial Hero No. 1, getting his picture in the paper and all the other honors that go with such a splendid achievement.

Clair Sipler and Walter Williams of White Haven, together caught 24 brook and brown trout, ranging from 9 to 12 inches, in the Lehigh River, on June 8.

Andrew Durkas of Plymouth, Francis Dailey of Kingston, and Charles and James Jones of Larksville, together caught 17 largemouth bass, ranging from 10 to 17 inches, 12 rock bass and two pickerel, in Lake Carey, on July 1.

John Goliash of Glen Lyon, caught 7 largemouth bass, ranging from 10 to 20 inches, total weight 22 pounds, and one large pickerel in Fords Lake, on July 1.

Ignatz Pecukonas and party of four, all of Kingston, together caught 12 smallmouth bass, ranging from 10 to 20 inches, in the North Branch, on July 1. The largest one which measured 20 inches weighed 4½ pounds and was taken by Mr. Pecukonas.

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EDITORIAL

Better Stream Cover Means Better Fishing

More cover on our trout streams has been stressed at various times by the Fish Commission, and that this feature of the drive for better fishing has been carried out in many sections of Pennsylvania during the past three years is apparent. Not only have organized sportsmen, junior conservationists and individuals interested in trout stream betterment taken an active interest, but members of the Civilian Conservation Corps have also been doing splendid stream improvement work. It is not my intention to discuss this phase of the better fishing drive, but rather the necessity of more cover in our outstanding warm water streams where the angler who seeks bass, wall-eyed pike and pickerel must find his sport.

Just how vital cover is to these streams has been, I believe, amply demonstrated on many of our waters during the past three years. We know that the bass cycle over that period here in Pennsylvania has been continually upward. This year, almost without exception, reports indicate that there are more bass, smallmouth and largemouth of varying sizes, in our streams than at any time during the past ten years. Of course, ideal spawning conditions and heavy stocking with bass are partially responsible for this increase in number, but abundant cover as a factor is of equal importance.

The bass fisherman has observed on the Juniata and Susquehanna rivers, for instance, immense patches of aquatic grass. This vegetation encroached, it is true, on many fine shallows and deeper flats favored as fishing spots. It was not, as some fishermen were prone to believe, planted by the Fish Commission, although as a better fishing move this would have been most effective. Nature alone was responsible for this vast increase of natural cover. Low water and high water temperatures encouraged the growth of aquatic vegetation and consequently provided ideal conditions for increase in number of fish life. Perhaps no single



factor has been more beneficial to improved warm water fishing.

Stream cover is not only essential as protection for the young of game fish, but serves as a rich production area for vast quantities of organisms essential to the growth of young fish. Without this vegetation in many of our streams, they would yield poor fishing, if any. Frequently, it may cause annoyance for the angler, but the vast good to fishing accomplished more than compensates for this factor.

How often, in casting for bass or pickerel, has not the average fisherman had the advantage of cover forcibly demonstrated? Often a strike from some large bass or pickerel is forthcoming from the spot where the branches of a sunken tree protrude above the surface, or where the shadowy outlines of a big log are to be observed. Again that strike from a big game fish may come just where a pocket occurs in the weed bed or in a tiny bay fringed by lily pads or reeds. Cover and big game fish are frequently thus closely linked for the angler's observation.

That warm water stream and lake improvement can be as practical from a fish production standpoint as trout

stream improvement is a thought well worth our consideration. Lake Wallenpaupack again this year is furnishing good fishing. Perhaps the greatest advantage to fish life in this big body of water is the fact that before it was flooded, old tree stumps, matted vegetation and logs were left in the area, later to be submerged and form ideal cover for the fish life that was to be produced. Many lures may be lost by deep trolling fishermen who seek the thrill of a wall-eye strike at Wallenpaupack but this same cover has been highly vital to the fishing it now affords.

When water temperatures drop in early autumn, a great deal of the aquatic vegetation will be dislodged in our warm water streams and washed away, but the purpose this fine cover has served during the summer months must have lasting influence on the fishing that is improving each year on our inland creeks and rivers.

O. M. Dribben

Commissioner of Fisheries.

Fishing Surface Lures For Bass

By Myron E. Shoemaker

THE fly rod surface lure for bass has been used so effectively by many fishermen that its popularity is increasing very rapidly and many fly fishermen now use nothing else. There are several different surface lures manufactured and while they are different in shape and size, all are made from deer hair or bucktail, closely tied and clipped to the desired shape and size thought best. A variation of colors are carefully worked into some of these lures which gives the finished product an appearance that the bass simply can not resist. I have heard some fishermen say, "I would hit that too if I were a bass."

Just who the originator of the surface lure is I do not know, but the first of these lures which I used was made by Joe Mesinger, Morgantown, W. Va. How his discovery came about I do not know. However, I am aware of the facts in the creation of the popular "Bass Bugger" made by Harry Weaver, Wilkes-Barre, Pa. It no doubt will be interesting to know the facts. Just one year ago he was fishing with a friend who was using a surface lure for bass. Seeing his companion make a cast for a bass which had just taken a natural from the water surface he was thrilled to see a two-pound bass leap from the water and take the descending lure before it hit. Immediately an idea developed and it was but a short time before Mr. Weaver was experimenting in making a creation for the fly fisherman to use for bass. The result is well known by the fishermen who use his product. It is very effective for both large and smallmouth bass and I have personal knowledge of fishermen who have taken forty and fifty bass in a single week with the surface lures.

Your editor has requested the writer to reveal to you some of his observations in using surface lures for bass. One of the first things I would like to make clear to the fly fisherman is the fact that the month of August is by no means the end of the fly fishing season. For some reason some fishermen have this impression. September is an excellent month. October also furnishes some fly fishing in either the morning or afternoon of those warm days when there is not a ripple on the water and the bass are feeding on top. Even the cool nights of October will bring many a big bass to the surface. Personally I prefer those two months for surface lure fishing due to the fact that there are not so many hatches of flies and the flies are not so plentiful when the hatch is on.

The fly fisherman using the surface lures must be properly equipped for that type of fishing in order successfully and properly to handle the lure to get the desired amount of satisfaction out of it. I have used the expression "handle the lure" because it may be more clear to the novice. The line really



BASS BUGGER TIED BY H. R. WEAVER OF WILKES-BARRE

is what is properly handled and the lure takes care of itself. The line is the most important part of the fly fisherman's outfit and for the surface lures I would suggest a level line of D size. If a double tapered line is desired it should be either HCH or HDH depending on the length and weight of the rod. The rod should be at least 9 feet and one of 9½ feet would be better. It should be free of the rigid backbone which is so prevalent in so many fly rods of today. The surface lures have more wind resistance than any other type of fly rod lures and can not be properly handled with one of those stiff rods. A rod with a smooth acceleration from the butt clear through to the tip which will give the proper follow through is the best type to use. A rod of from 6 to 6½ ounces will best serve the purpose. A lighter rod might work but it will not stand the gaff of the hard fighting bass over a long period. The reel need not be an expensive one. Any single action reel will serve the purpose, that is, one that will hold 90 feet of fly line. The leader need not be more than six feet in length and not too heavy.

In order to handle properly the surface lures I would suggest by all means that the line and leader be greased thoroughly. The lure also should have some application which will not cause it to waterlog. Any good grade of line dressing will serve the purpose for the line and leader. For the lure I find that a piece of paraffin about twice the size of a marble dissolved in about a half ounce of gasoline is very good. This does not add any weight to the lure and leaves it in excellent condition. It is easy to apply and dries almost immediately. This leaves a very thin coating of film on the lure which will keep it dry for some time.

Many fishermen ask the question:—Can bass be taken with the surface lures during the day or must they be used at night? Bass can be taken with them either day or night. There is no use denying the fact that bass are very selective and high hat at times and even an expert fisherman, whether he uses live bait or artificial lures, has his troubles

making bass rise in the early morning, in the middle of the day when it is hot and in the evening and night time. I am very firmly of the opinion that no one knows just what a bass is going to do and it is up to the fisherman to find out after he has started fishing. To me this is the thing which makes fishing with the surface lures so fascinating.

Bass being of a very temperamental nature, there are no set rules as to the action of the lure on the water. With the line, leader and lure properly greased it is very easy to do most any kind of antics with the lure on the water's surface. It apparently makes no difference to the bass whether the lure drops gently to the water or hits with a splash. This must be determined after the fisherman starts fishing and observes what takes place. Sometimes the bass will leap from the water and take the lure in the air. Other times he hits it immediately upon its landing upon the water. Again it will float a short distance before the strike. Natural floating of the lure is most effective at times and again it is quite necessary to give the lure some action by a mere flick of the tip of the rod, then letting it float natural again. Other times quick, short, successive movements of the lure have the desired effect. In any event the surface lure should be fished either up stream as in any dry fly fishing or across the current for smallmouth bass. For large mouth bass it is well to let the lure remain motionless on the water for a minute or so then slightly move it and let it remain motionless again. At other times it is most effective by giving it short, successive jerks which seems to give the lure almost the same action as some of the surface plugs. Regardless of how the bass wants the lure to look or act one can never tell whether the bass will take the lure with a smash and splash or just gently suck it from the surface. If the strike is a vicious one then set the hook at once; if the lure is simply sucked from the surface just hesitate momentarily, but not too long, before setting the hook. All that is necessary to set the hook is a flick of the rod. If the bass has the lure well in his mouth, he will be of great assistance to you in helping to set the hook and will do it quicker than you can. Just imagine yourself jabbed with a pin and what your reaction would be. This is where the greased line is of assistance to you. It is on the water's surface and there is nothing to stop quick action in tightening the line when making the strike to hook the fish. This also greatly assists in letting the bass have a little time after sucking the lure in. The soft texture of these lures does not cause the bass to spit them out immediately as he does when taking a lure of a hard substance, that is, a hard body substance. These hard bodies are foreign to the bass



SPENT WING BUGER

and he can detect it very readily and can spit it out almost immediately.

The question of the depth of the water is something which the fisherman should determine for himself. Some fishermen prefer fast water and others slow water, some shallow and some deep. Bass roam about so much that one can never tell where they will be during the warmer weather. Of course in the late fall they are in the deep water and then on the warm days are found in more shallow water. Regardless of the depth or swiftness of the water if the bass wants your surface lure he will get it. When the bass are located and especially when they are rising to natural flies it is quite important that the lure be dropped just as near the rise as is possible. This does not seem to scare the bass and he will sometimes rise immediately.

There are two or three sizes of these surface lures and many color combinations. As to the sizes I would suggest at least two. One of number 4 hook and one of number 2 hook. Size sometimes makes the difference between a successful day and a bad one. If the bass are really hitting hard the larger hook is best. If they are simply sucking the lure in, then the smaller size is best. Color, I really believe, is a matter of choice among fishermen rather than a choice to the bass, although there are fishermen who claim fish can distinguish color, while there are others, who are scientists, who claim they are color blind. Regardless of whether they can distinguish color or not I am always prepared and have some different colors but not many. One fisherman may desire yellow, others red, and others natural colors and so on. If a fisherman has good luck on some certain color and has confidence in that color I would advise him to stick to that color because he has confidence in it. And confidence in a lure means a lot.

When bass have not been too selective I have done considerable experimenting with color and sizes and have found one color to be just as effective as another. At other times when they have been too "high hat," I have tried all kinds of colors and sizes without a rise and could see the fish all the time, then have returned to one of the first colors and made the catch. Possibly this fish became maddened by being constantly bothered and possibly he wanted that particular color. However, the way he hit the lure would not indicate that he was infuriated; just curious or hungry. Not having the mind of the fish it is hard to decide.

Personally, I take a great deal of pleasure in simply casting these surface lures, seeing them light on the water and float on their way, not knowing at what minute they will disappear under the water's surface, taken by a rising fish, or disappear from view in a spray of water from the vicious strike of a hungry bass. The uncertainty of what will happen and the mere casting of the surface lure leaves a fascination second to none in fishing, and once the fisherman starts using them, he will have many pleasant hours ahead which he will not soon forget.

Editor's Note—Myron Shoemaker lives at Laceyville, on the famous North Branch of the Susquehanna. His observations, based on practical experience in bass fishing, should be of particular interest to our readers. As a fly fisherman, he ranks with the best in Pennsylvania today.

ANGLERS COMPETE AT WALTON FIELD DAY

In spite of rain-sodden fields, a large crowd attended the seventh annual field day of the Delaware County Chapter, Izaak Walton League of America, recently. Trapshooters, pistol marksmen, rifle shots, fishermen, and archery enthusiasts supplied keen competition for the numerous prizes.

Some of the events started as early as 10 o'clock in the morning and it was near evening when the final scores were registered. The affair was held in the Marr-Wolfenden meadow, along Ridley Creek, about one mile northwest of Media.

Fly and bait casting furnished keen competition for fishermen in five events.

First place for fly casting, accuracy at known distance, went to Morton Paul, of Swarthmore, score 96. P. G. Platt, of Wallingford, took second with 92 and B. G. Smith, of Kennett Square, was third with 90.

In the event for accuracy at unknown distance, first prize was won by M. J. Tobias, of Williamson School, score 96; second, P. G. Platt, 94; third, H. O. Wilcox, of Media, 93.

The prize for distance fly casting was won by Morton Paul, 76 2/3 feet; second place, M. J. Tobias, 72 1/3; third, P. G. Platt, 71 2/3.

In bait casting, for distance, the first prize winner was J. L. Pierce, of Lenni.

Another Sportsman Governor

Pennsylvania sportsmen were not the only fortunate ones to have a Governor elected who is one hundred percent conservationist and sportsman, as the following clipping taken from the Conservation Magazine of Tennessee indicates:

"Gov. Hill McAlister has won the esteem and praise of the sportsmen of this state because of his selection of such a fine group of commissioners to control the state's outdoor life. The Governor has fulfilled his pre-election pledge, to take the Game and Fish Department out of politics."

This pledge and the fulfillment of it, as carried out by Governor McAlister, closely parallels the same stand Governor Earle of Pennsylvania has taken in keeping political interference out of the Game and Fish Commissions.

It is needless to say that these Governors have the solid backing and support of the sportsmen of these two States. In Pennsylvania, with over a half million organized sportsmen, together with their friends, this means a considerable following and support for our Governor, who is looked upon as the sportsmen's real friend.



SETH SAYS

Jest give me a good long cane pole, right strong line an' a spoon bait, an' I reckon I got the best outfit fer pickerel fishin' a man kin git. Ef a feller skitters among the lily pads an' weeds 'long about this time o' year, he kin hev some real fun. Pickerel an' bass hev got inter the deep holes on the crick an' this month oughter be the best fer fishin' in the season. What with the air snappy an' bracin', the trees along the crick a-colorin' up an' mebbe a touch o' frost in the mornin', a feller who likes ter fish hes some happy days ahead.

Jerry Tims 'n' me hes always fished live bait most fer bass an' pickerel, but we figgered out one night thet mebbe there was somethin' ter this palaver about fake baits. So we each gits a spoon hook at the store in town, an' starts out. By gorry, thet was some fun we hed. We'd drop the spoon in plouts here an' there not far from shore, an' them pickerel'd jist about hop out on the bank fer it. I ketched one thet weighed better'n three pounds an' was 24 inches long, Jerry he beat me at thet fer he got a 25-inch weighin' three an' a half. They was big broad fish, an' I ain't never seen our fish in the crick in better shape fer the winter. Them pike was a-rollin' in fat. Jerry an' me ketched us five apiece, an' not one was under 17 inches.

We spotted some right fair squirrel trees down by the crick, an' chances is we'll be right at 'em on the first day o' squirrel season. Reckon this time o' year hes about all a feller who likes ter fish an' hunt could want.

PLAIN PANFISH

By Charles M. Wetzel

PROBABLY the greatest lumber of fish caught on our streams and lakes are the pan fish (small fish, fried whole, of frying pan size) such as the perch, rock bass, fall fish, catfish, chubs and sunfish. The crappie, too, falls under the same category, but I have not included it as this fish appears to be rarely found in our Pennsylvania waters.

It is quite difficult to show others how to catch panfish, especially when we all believe we have graduated from the panfish school, and knowing my limitations, I will attempt it only in a general way.

In fishing for panfish two methods are commonly employed. 1. The "Old Timers" generally used the long cane pole, with float, sinker and hooks attached to the line as shown in Figure 11. This rig baited with angleworms has always been popular with young and old alike. 2. The modern angler scorns the use of such heavy equipment and uses instead the light fly rod, generally equipped with three wet flies as illustrated in Fig. 1. This is the identical rig of the wet fly trout fisherman, so popular on all streams. A light six-foot leader with point and two dropper loops is required for attaching the three wet flies. This convention is illustrated in Figs. 2 and 3, while Fig. 4 shows the method commonly employed in fastening the line to the leader.

Aside from the bullhead, all of the panfish rise well to the fly—the gentlemanly way of catching fish. For those of you with fly casting aspirations, no more suitable place for obtaining experience can be found than on our warm water streams, fishing for the panfish. There, as often as not, you will find some expert fly caster indulging in his favorite sport; and at a small expense securing almost the same enjoyment as if he were far away on some turbulent mountain stream. Probably this same angler has been off his strike, (failure to hook the fish) and is seeking to recover that synchronous coordination of eye and movement, so essential to the successful fly fisher. Make no mistake about it, panfish rise well to the fly and furnish excellent sport on the light rod.

The Perch

One of the most outstanding characteristics of the perch is that they gather together in schools; and when one is caught others usually follow, that is if the school can be kept in the immediate vicinity.

A few years ago my father and I were fishing Lake Wallenpaupack for wall-eyes. Having fished for a few days gaining plenty of experience and no fish, it was high time that the skillet should take on the fishy odor usually associated with camping out. On previous trips we had more or less established a precedent that the wife expected us to live up to, and rowing across the lake that evening after another fishless day, Dad said: "Charlie, we'll have to catch a mess of fish soon. This razzing we're getting from your wife every night is getting on my nerves."

Nearly half way across the lake, we noticed a school of yellow perch breaking

water all around, feeding on the midge fly chironomous, which the wind had collected in large patches.

"If only we had some trout flies along, we'd have a mess in a short time," I said, watching the perch splashing around.

"We don't have any," said Dad. "Let's see if we can't catch some on night crawlers."

"I'll keep them around, while you fish," I offered, dropping the anchor overboard.

Attaching a tandem spinner to my line, (similar to that illustrated in Fig. 8) I dropped it into the water; and by constantly raising and lowering it, the fish were kept in a continual state of excitement. In a short time they moved away, no longer fascinated by the glittering blades, but not until after we had caught our mess of fish.

We are particularly fortunate here in Pennsylvania in not finding worms in our perch. On various northern lakes, these pests bury themselves in the flesh of the fish and can easily be located by the small brown spots in the white meat after the fish has been gutted.

Worms and minnows are probably the best perch baits, but when the fish are surface feeding, trout flies prove superior to anything. The flies should be cast out over the water, allowed to sink a moment, then retrieved with a slight twitching motion. I have had the best success with the red ant, professor and a small governor.

White perch are found in the Neshaminy Creek and some excellent sport can be had fly fishing for them during late May and early June. At dusk the school starts working upstream for probably two hundred yards, causing a great commotion on the surface of the water; and if one keeps abreast on this foraging trip, a double now and then on the red ant will not prove unusual.

Chubs and Fall Fish

Chubs rise well to the fly and are usually found in the swift riffles or immediately below, where the current slows down over the deeper pools. Worms, crickets and grasshoppers are among the best of baits, but probably the greatest number of chubs are caught on flies during trout season. Like the sucker in late summer, their flesh grows very soft, but they are among the best of fish for tasty eating. Scale, remove head and entrails; fry crisp and brown, eating bones and all.

Fallfish, commonly called whitefish, are found in the majority of our larger streams and are without doubt one of our prettiest fishes. On the North Branch of the Susquehanna below Wyalusing, I have had excellent results using a tandem spinner and small Paramachene Belle fly similar to Fig. 8. They also take a dry fly, especially those like the Coachman, Bee, Rube Wood or others which are tied with thick plump bodies. Some of the fallfish attain a large size and put up a real scrap on a light fly rod. I have never found them so plentiful

and undoubtedly the great majority are caught while fishing for other fish, like the trout in early spring.

The Catfish

When fishing for bullheads or catfish, it is essential that the bait reaches the bottom of the stream bed for these fish are bottom feeders; and to achieve this effect a small sinker is usually employed. The most commonly used bait is the angleworm, but minnows and pieces of sparrow work equally as well. Bullhead fishing is at its best during a flood when the water is high and discolored.

Remember our barefoot days, when we impatiently waited for the rain to cease so we could go fishing, while outside in the street the gutters were overflowing with muddy colored water washed from the nearby fields? Everyone knew that it was bullhead weather—that the catfish and eels would shortly begin feeding on the myriads of angleworms carried down into the creek by the storm—and how necessary it was to get to the creek, just at the time when the water started to grow cloudy.

Finally the storm would be over and with a "whoop," we'd rush out to the chicken yard to dig for worms, which after the rain would be near the surface of the ground. How the chickens would be crowding around, rushing in and seizing the angleworms out of the freshly turned earth in a most exasperating way.

Then over to "Bingman's hole," a great place for "catties," where an immense white oak towered out over the water,—and where the shore line dropped off gradually through a muddy bottom, thickly clustered with pond lilies to the deeper pool beyond. How fishy it looked with myriads of small foam patches monotonously circling on its surface. Upstream the muddy water would just be arriving. We would be on time for hadn't we run all the way over? With fingers trembling in eagerness we would start unwinding the line wrapped about the long cane poles, bait up the two hooks with worms, adjust the cork or float to the depth of the water and cast it out. Then would follow that breathless period of expectancy, broken by a shout from John: "I got a bite, look at that cork going out over the water wouldya."

"Don't wait fer the cork to go under, he's runnin' off with it. Pull 'im out quick," I would yell excitedly. "Mebbe it's an eel."

John would take a firm grip on the rod, give a lusty heave and the fish would describe a graceful arc over his head, landing far back in the field. Hastily scrambling up the bank, we would gather around and admire the prize.

"Do you think he'll go a foot?" John would ask anxiously, viewing with pardonable pride the six-inch bullhead.

"All of it," I'd answer enviously, mentally adding three inches to the estimated length. Then followed the usual obsequies. And so it would continue.

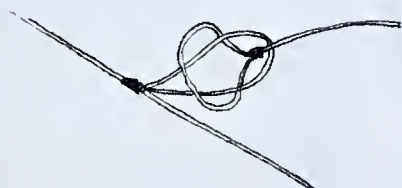
Many a time we fished till dark, the most



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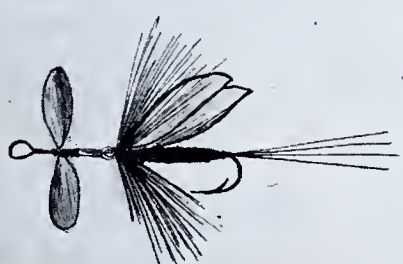
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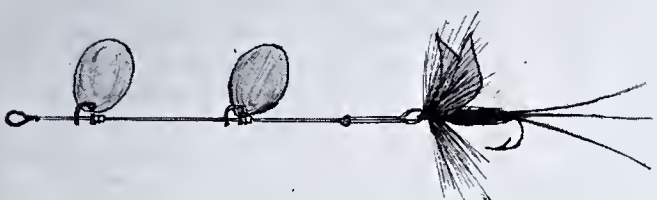
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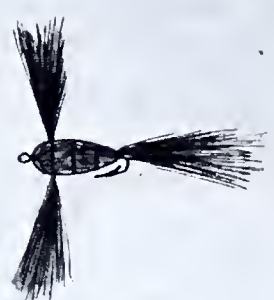
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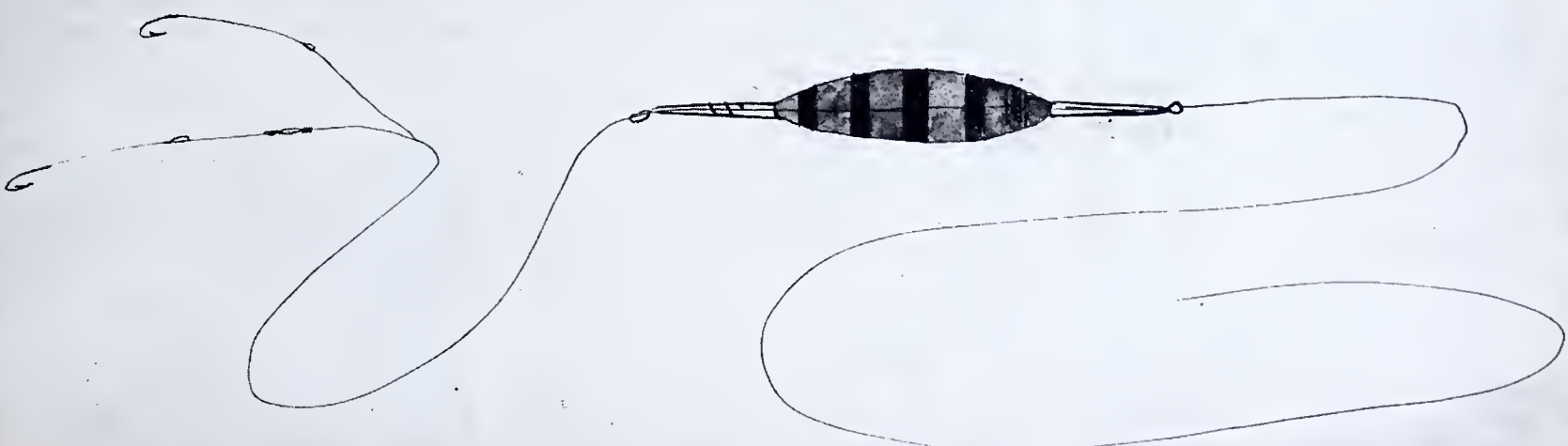
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Wetzel 8/31/35

fascinating hours of the day. Then the fireflies would appear, and along the creek the deep-throated booming of the frogs held an eerie ring. Probably by that time the red or stone catfish would start biting and as if by signal we would start wrapping up our lines, for we knew the fishing was over when they started biting—the water had been muddy too long.

Halcyon days they were, over by "Bingman's hole." This was the spot where I caught catfish during the middle of day when there hadn't been a rain for weeks. Mother's favorite fish was the catfish and regardless of the condition of the water, I usually brought home a few for her. Naturally an accomplishment such as this aroused considerable curiosity among the local anglers, but the secret was relatively simple. I hadn't been using any magic fish lure as a veteran angler thought one day while I was hooking suckers from the old red bridge spanning the Middle Creek.

Permit me to digress from my subject a minute while I recount this episode for it fittingly illustrates the old saying that anglers are among the most gullible and imaginative of all people.

In those days it was legal to hook suckers, that is to slip a bare hook (usually a treble) under their nose as they lay motionless in the water.

Now it so happened that on this particular day I was walking along feeling rather disconsolate over not having caught any fish and happening to pass by the old red bridge on my homeward way, I stopped for a minute to look down into the water. Slightly farther downstream an old veteran sucker fisherman reclining on the bank was drowsily puffing away on his pipe; and evidently he, too, found the fishing poor, for judging from his indolent position he hadn't moved any in the last few hours.

Underneath the bridge in the slightly cloudy water, the dim outlines of a school of suckers were faintly visible. I couldn't see the hook to hook them for the water was too cloudy, and I was more or less at a loss to proceed, knowing they would not take bait.

In my tackle box was an old tube of oil colors and I finally seized on the happy expedient of painting the bare hook with it. Everything worked out fine and in the cloudy water the painted hook was more visible than the fish themselves.

I had caught one or two when this old veteran angler sauntered up, evidently thinking I had struck a bonanza.

"Young fellow, do you mind if I fish besides you?" he asked peering down into the water, directly at the spot where the fish were lying.

"Not at all," I answered, moving over, "go right ahead."

Every now and then I would lift out a sucker which stimulated the old lad to increasing endeavor. Evidently his sight was bad, for it was apparent that he did not see the fish lying directly below him. After one of these periodical catches, the old chap noticed me squeezing out the paint on the bare hook.

"What kinda magic fish lure do you call that?" he asked suspiciously moving over to have a better look.

"It's sort of a secret compound," I answered with a grin, hastily pocketing the tube.

Then ensued a silence of about five minutes. Had I been rude and hurt the old chap's feelings? But no, after lifting out another sucker, the old man again spoke up: "You know, young fellow, I surely would like to try some of that fish lure."

"I'm quitting now and you can have what is left," I answered, passing him the tube together with a few of the largest fish I had recently caught.

I suppose I should have left him in on the joke, but one event followed another—was elaborated on to a great extent, especially when the old man continued to pump me regarding the secret—so that it was impossible to explain without appearing ridiculous. The old chap was so nice—even wanted to form a partnership in manufacturing the lure—so that my generosity in parting with the largest suckers was an act no doubt prompted by the way of atonement.

But getting back to catching catfish during the day in clear water. This was accomplished by wading in the stream and stirring up the mud and silt among the lily pads. It is only necessary to wait a few minutes for the catfish to come out of the mud and start feeding, as they evidently think that food is being washed down from a recent storm. I have made several outstanding catches of catfish in this manner, especially during long dry periods when they feed avidly.

Bullheads are more or less nocturnal in habit and in lakes where the water is normally clear—fishing is usually done at night. There are exceptions, of course, to the above, for at one time while fishing for muskies in Little Mud Lake, Ontario, I caught a large channel catfish during the day on a No. 6 Lowe Star Spoon, probably one of few instances of its kind; but be it as it may, if you want to catch catfish, fish for them at night or during a time when the water is muddy.

Rock Bass

This small fish is a vicious fighter and will strike savagely on plugs longer than itself. They are lovers of rocks but gather in schools around any convenient shelter, like submerged logs, overhanging stumps and the like. The small flyrod plug is very good especially the white one having a red head, illustrated in Fig. 9. Worms, wet flies, grasshoppers, crickets, minnows, fly and spinner combinations are all good but the most successful lures are those that kick up a commotion as they are being drawn through the water. I have caught quite a few rock bass on the small feather minnow illustrated in Fig. 7; and the small cork bodied bug, Fig. 10, works fine when the fish are surface feeding.

Sunfish

Everyone knows the sunfish but comparatively few know how consistently to take him on the fly rod with artificial flies. The secret is that they have not been using the correct pattern, for like the trout, the sunfish is very selective. It is probably due to this discriminating trait that the sport has not proved more popular, for many anglers after a few unsuccessful attempts, grow discouraged and form the opinion that

catching "sunnies" on trout flies is the "bunk."

First it is necessary to locate the fish, probably the greatest secret of all in successful angling. Look for them around overhanging stumps, submerged logs, large rocks, lily pads and pockets in the long waving ruffled pond weed. Another favorite lurking place is just at the edge of a bed of the water weed *Philotria*, commonly found on Middle Creek and the majority of our warm water streams.

Having located the fish which assemble more or less in groups, start casting, changing flies frequently until the correct one is secured—then remember the pattern for future use.

Wet flies are without doubt superior to all others and the shallower the water, the more effective the fly. One of the most dependable patterns is the orange or carrot colored nymph, reputed annihilator of brown and brook trout. With it, I have never caught a trout, but many a sunfish has succumbed to its devastating charms.

SPEAKING OF PICKEREL

Northwestern Pennsylvania with Lake LeBoeuf, Edinboro Lake and Conneaut Lake may boast the finest muskellunge fishing in the state; the north tier counties, Potter and Tioga, the central counties Centre, Union and Clinton may bow to no others in trout fishing waters, while the Allegheny, North Branch of the Susquehanna and the Juniata River and tributaries may rank ace high for smallmouth bass—but when it comes to fishing for the slim and aggressive chain pickerel, take off the hat to the ponds and lakes of Wayne County and northeastern Pennsylvania. Here, in a setting of forest grandeur second to none in the Keystone State, the native pickerel has held its own and ranks, perhaps without doubt, as the outstanding game fish in the area.

Members of the Perkins Pond Club, business and professional men of Honesdale in Wayne County, have set a splendid example in fishing for pickerel. They have adopted a minimum size limit of 15 inches, and return every fish under that size to the water. Nine members of the Club, fishing on opening day of the pickerel season, landed 111 pickerel over 15 inches in length by 7:30 in the morning. The fish were retained alive in wells under the boat seats, counted upon returning to the landing, and then all but 20 of the total catch were returned to the water. Two of these pickerel topped four pounds in weight, one weighing 4¾ pounds.

Included in the membership of this live-wire sportsmen's club are Frank Sheurholz, Dan Faatz, Bill Boder, John Dingwall and Dr. Baer.

BIG BASS FROM THE AUGHWICK

The Aughwick Creek in Huntingdon County is furnishing fine fishing for small-mouth bass this year, writes Warden Bill Keebaugh of Hustontown. Recently, Cree Weston, youthful angler, landed a bass measuring 19 inches in length and weighing 3 pounds, 13 ounces. Howard Freese, of Hollidaysburg, caught a real old timer of the smallmouth clan, measuring 22 inches in length and weighing 5 pounds.

"Pooley to You from Me"

By Iwana B. Anonymous

FOR more than 15 years I have done more than my share towards making life miserable for our piscatorial friends of lake and stream. Annually I've expended from \$6 to \$10 per pound for my trout; the cost of bass and muskellunge I haven't cared to estimate. Long ago I ceased to gain any diversion from my catches or anticipations of them. I've come to the conclusion that when it comes to outdoor sports, I had better discard my natural voracious tendencies and in oral retrospect exaggerate the few puny successes I've had with rod and gun in order to retain the respect of my superiors with those instruments.

Like brother Richard S. Bond (PENNSYLVANIA ANGLER for August, 1935) when any of my famous contemporaries accompany me on a fishing trip, my presence disrupts all normal relations between them and the trout and they catch 6½ or 7 inch ones the same as myself. Sometimes we go far back into the wilderness, in the "big woods" portion of the state where seldom any white men go, except forest rangers, fire wardens, game wardens, fish wardens, the men who dump the hatchery fish into the streams and ten thousand other fishermen. Here the streams are almost as pretty as they are within a few miles of home, except that there are more sardine and salmon cans by the more frequent fireplaces, and that it isn't as lonesome. However, papa and grandpapa trout have instructed the kiddies to seize the bait, here as elsewhere. Always taking for granted that the trout are not orphans.

The purpose of this bit of pessimism is twofold. Firstly because confession is good for the soul; secondly because there might just possibly be another person like myself who just can't catch any big fish, and I would like to encourage him not to give up in disgust. Ditto with hunting. Don't take it to heart if your friends can shoot a buck running, at five hundred yards, when you can't even make out horns at two hundred. To my great shame, I once shot a three point buck standing, only sixty yards away! I didn't get it through the heart either. (Is it any wonder that I write this under the cloak of anonymity?)



FIG. 1

Another unpardonable sin of mine is the use of live bait in bass fishing. I never purposely let a bass swallow the bait, as I figure he puts up a better fight with the hook in his jaw. I wouldn't recommend this practice to everyone, as by letting the bass swallow the bait, if you use good sized bait, it adds that much to its weight. Of course the real reason I use live bait is because I can't catch anything bait or fly casting, the latter being merely a pleasurable form of exercise as far as I am concerned.

To get back to trout fishing, the proper attitude for poor anglers like myself to take is not to expect to catch any trout. Just do a little fishing on your way down the stream, so if you happen to meet any of your friends they won't get the idea you are sentimental by merely gawping at the scenery and drinking in the spring air. Once in a while you may have to extract a small trout from your hook. I recommend the barbless hook, as the little trout will come off so easily that it won't appreciably disturb your day dreaming. There might be times when you will catch a six or seven inch trout. If you like to eat fish at all, hide these away in a corner of your creel, and sometime when you can do so unobserved, cook them. They are delectable. Don't tell anyone about them, because real sportsmen like our friends don't keep anything under eight inches.

Figure One illustrates what can be done with a Kodak in substantiating any tall yarns you care to make about your fish. The trout in the picture are really nothing to brag about, if the truth be known. Place your trout considerably in front of the smallest creel you can find. Include a foot rule in the background. I have often considered having a special ruler made, about six inches in length and marked off to represent a foot. By a little practice in posing your fish, such special apparatus is not necessary. Another convenient method of having pictures prove your tale, is to borrow the fish from someone else, perhaps the combined catches of several people. Figure Two illustrates this nicely.

One point to remember in relating your fish stories is to fabricate them carefully, and then stick to the original. Elaborating on them as you retell them is bound to result in your getting caught up some time. You will probably be surprised as the years roll along that some of your best stories will become so real to you that you will be convinced yourself of their veracity.

In closing, I hope that I have not left the impression that I minimize the great sport of fishing in any way. There is no other activity which is equally as stimulating in so many ways. One develops his love of nature, his physique and his mentality. I recommend angling above anything else to people who are inclined to be unimaginative. Tolerance is one of the virtues most sadly



FIG. 2

lacking in most people. Fishermen acquire it * * * "well, I guess I can listen to his story, he listened to mine."

Finis.

CLARION BUCKTAILS FIGHT POLLUTION

Adopting as their slogan "Clean the Clarion," the Clarion County Bucktail Association has been steadily forging toward this objective. One of the outstanding sportsmen's field meets in the state, the Tri-County Sportsmen's Outing, sponsored by the Bucktails was held at Cooks Forest on Labor Day. Scheduled events included plug casting, rifle and trap-shooting, and an address by Mayor Wm. N. McNair, of Pittsburgh. A picnic dinner was served. Other events were a Boy's Contest, Girl's Contest and Women's Rolling Pin Contest.

Appearing on the first page of the program is a splendid dedication by M. M. Kaufman, second vice-president. It follows:

"THE GREAT ARCHITECT OF THE UNIVERSE planned and builded miraculously, placing on land, in the air and in the waters, animal, bird, fish and vegetable life. In ignorance man has wantonly wasted and destroyed them. NOW THIS IS OUR AIM: We will sow more than we reap. When we cut down a tree, we will plant twenty. We will rear birds and animals; provide fields and forests, food and shelter for them. We will breed fishes in abundance and see to it that their water-homes are once more made pure and clean and so remain.

"Oh, the exhilaration, the health and pleasure found in our great out-of-doors!

"If you are a nature lover in any of its many fascinations—a lover of mountains and valleys, of trees, vines, ferns, wild flowers and rocks; of lakes, rivers and brooks; a hunter, a fisherman, a boatman, a swimmer or a camper, or like a bee, just taking a sip of delight, here and there, throughout nature's realm, we ask you to become one of us."

The Snapping Turtle

By Paul L. Swanson

THERE is a small pond near my home which was formed by the removal of limestone for agricultural purposes. It is fed only by seepage and rain, but its depth prevents it from totally drying up during a normal summer. To the south are many farms under cultivation; to the north are numerous wooded areas, making the pond a convenient place for various kinds of amphibians to congregate in the spring to perpetuate their kind.

The rather uncommon Swamp Tree Frog may be found there at the proper season. Spring Peepers, Tree Toads, Common Toads, Green Frogs, Pickerel Frogs, Leopard Frogs, Wood Frogs, Spotted Salamanders, Jefferson's Salamanders and Newts all use the pond as an amphibian nursery. Thus it is an excellent laboratory for the study of these forms of wild life. Most of them find their way to the pond in early spring, mate, deposit eggs and leave, some species remaining only a day or two. The larval forms, or tadpoles, make an interesting subject for observation. I visited the pond frequently this spring and summer. One night I discovered that two snapping turtles had moved in. I left them undisturbed to see if these small creatures were suitable forage for the greedy chelonians. From then on the denizens of the pond rapidly diminished in numbers. In about two weeks the larval salamanders and frogs were so rare that I decided to remove the turtles. I captured one.

A few days later a neighbor brought me the other, or at least one very nearly the same size, which he caught about a quarter of a mile from the pond after it had killed several of his ducklings. It still had a feather of one of its victims clinging to its jaws when it was brought to me.

To those who believe that every living thing on earth was put here for a purpose, the snapper, together with hundreds of other creatures, is rather hard to explain. Perhaps it acts as a weight to keep "the balance of nature" on an even keel. The theory

of the balance of nature is a good one, but it has many drawbacks. It usually excludes man from nature, making him the chief offender for throwing things out of balance, assuming that disregarding the presence of man, nature would always be more or less "balanced." However, nature is never perfectly balanced. It is always undergoing great changes. If it were not, once it became balanced it would remain more or less unchanged. Thus if the balance had been established during the age of reptiles, that age would still exist, and man would occupy a very unimportant place if he were here at all.

The snapper has the redeeming feature of being prized as food by many. Personally I'd prefer some of the ducklings, frog legs or fish that the snapper preyed upon. Fortunately the snapper and soft-shelled turtles, our two most voracious predatory reptiles, are hunted for food, which thins down their numbers much more than if they were inedible.

The snapping turtle is well known to most fishermen, although there are many who call almost any large turtle a "snapper." It is very easily identified by the large head, the long tail surmounted by flat tubercles, and the serrated margin on the rear of the upper shell. The lower shell is very small, leaving the fleshy legs exposed and furnishing much less protection than that of most other species of turtles. Young specimens have three keels on the upper shell which gradually become less noticeable as the turtle grows older. The term "mud turtle" is sometimes incorrectly applied to the snapper, but more appropriately belongs to a much smaller turtle which differs considerably in appearance.

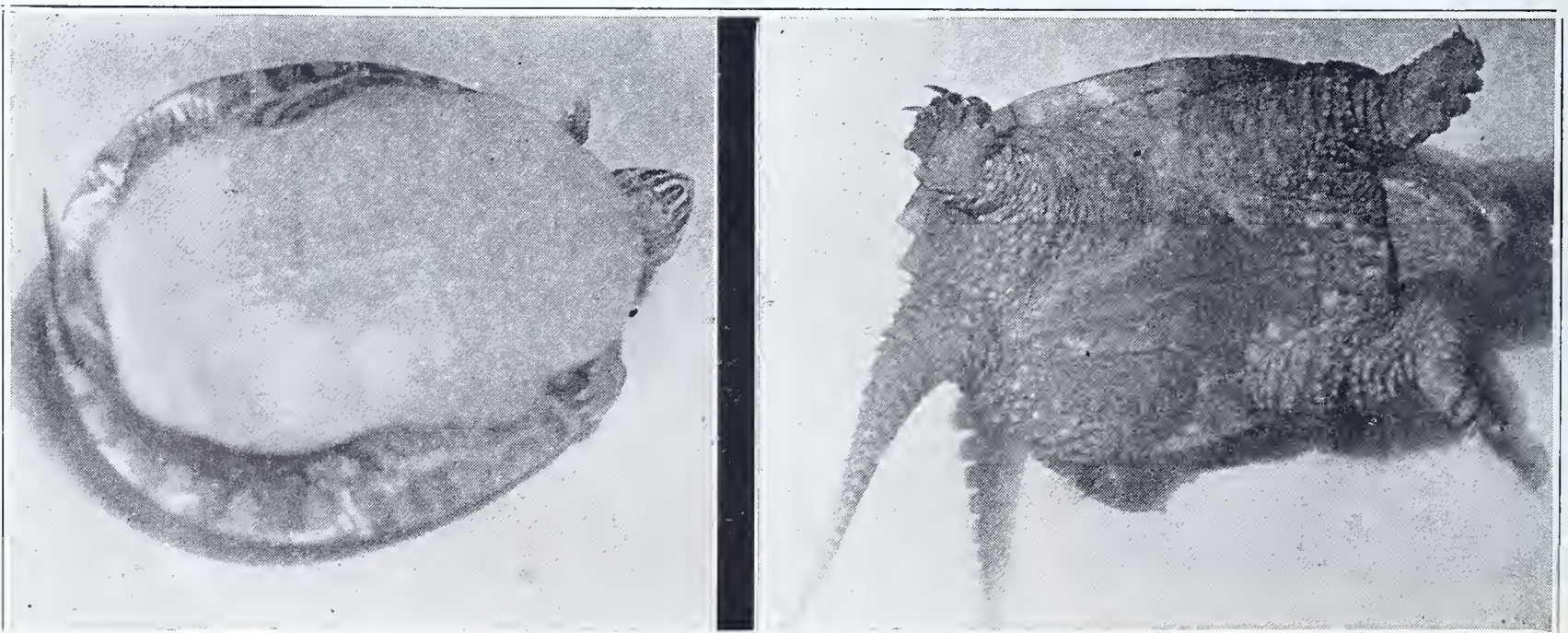
A large snapping turtle has a shell about 12 or 14 inches in length and would weigh in the neighborhood of 30 pounds. In rare instances a larger one might be found, perhaps 40 pounds in weight. The average weight is about 7 or 8 pounds, as determined

by a large number of snappers sold at markets.

The female snapper usually goes a short distance from the water to lay her eggs, sometime in June or July. She burrows in the sand or soil until she is fairly well-covered. After depositing the eggs she crawls away; the dirt falling off her back into the depression, leaving the eggs covered. The eggs are spherical in shape, about an inch in diameter, with a thin white shell. Twenty to thirty is the average number, although large examples lay many more. A specimen caught by David Swanson in Minnesota and donated to the Carnegie Museum contained 64 eggs. As with most other reptiles, few of the young ever reach a state of maturity. Very young turtles are eaten by rats, fish, frogs and other animals, but the older they become the fewer enemies they have capable of doing them harm.

The food of the snapping turtle consists of a very large number of species of the animal kingdom. They have been known to eat small mammals, birds, snakes, salamanders, frogs, tadpoles, fish, crayfish, insects, snails and worms. One specimen was found to have eaten a robin; another a starling. Ducklings are frequently taken. In catching the latter, the turtle swims up beneath the unsuspecting bird, seizes it and drags it beneath the surface to drown. It sometimes buries itself in the mud at the bottom of a pool and awaits fish or other prey to come within reach of its powerful jaws. In a previous issue of the ANGLER, it was noted that a captive specimen consumed from 3 to 5 pounds of fish daily for a period of one week.

The snapper hibernates in the winter months, often collecting in large numbers. Turtle hunters make the most of this fact and collect at that season. Muskrat burrows are a favorite place for hibernation. In one instance 26 turtles were removed from one burrow. According to another report, 1420 pounds of snappers were taken from one muskrat runway.



VENTRAL SURFACES OF PAINTED TURTLE, (LEFT), AND SNAPPING TURTLE AT RIGHT. NOTE DIFFERENCES IN

TROUT FEATURE AUGUST STOCKING

Trout above legal six-inch size, brook, brown and rainbow, featured stocking of Pennsylvania waters by the Fish Commission during August. Of a total number of 100,544 fish distributed, brown trout, 8 to 12 inches in length, numbered 58,718; brook trout, 7 to 8 inches, 39,400, rainbow trout, 8 to 10 inches, 1,440; pickerel, 3 to 12 inches, 426; bullhead catfish, 2 to 10 inches, 360, and bluegill sunfish, averaging 5 inches, 200.

Following are the waters stocked in the various counties:

Adams—brook trout, Carbaugh Run, Toms Creek.

Armstrong—brook trout, Corn Planter Run, Patterson Creek, Scrubgrass Creek, Mill Run.

Bedford—brown trout, Yellow Creek, Wills Creek, Cumberland Valley Run, Imberton Run, Raystown Branch Juniata River; rainbow trout, Thomas W. Koon Lake.

Berks—brook trout, Swamp Creek, Black Creek, Raush Creek.

Blair—brown trout, Clover Creek, Bald Eagle Creek, Piney Creek.

Bucks—brook trout, Beaver Run.

Butler—brook trout, Bear Creek, North Branch Bear Creek, Chanceys Run, Little Connoquenessing Creek; brown trout, Thron Creek.

Cambria—brown trout, Chest Creek, Clearfield Creek.

Cameron—brown trout, Sinnemahoning Portage Creek, Driftwood Branch.

Carbon—brook trout, Mauch Chunk Creek, Pine Run, Stoney Creek; brown trout, Pohopoco Creek, Hayes Creek.

Centre—brook trout, Cedar Creek, Pine Creek, Wolf Run, Cherry Run; brown trout, Spring Creek, Penns Creek, Marsh Creek, Bald Eagle Creek, Little Moshannon Creek; pickerel, Moshannon Lake.

Chester—brook trout, French Creek.

Clarion—brook trout, Mill Creek, Toms Run, Deer Creek, Step Creek, Mahles Run, Buck Run, Little Piney Creek, Little Toby Creek, East Sandy Creek; brown trout, Piney Creek.

Clearfield—brown trout, Lick Run.

Clinton—brook trout, Middle Branch Big Run, Swamp Branch Big Run, Twin Run, Monument Run; brown trout, Big Fishing Creek.

Columbia—brook trout, West Creek, Little Fishing Creek, Coles Creek, Lick Run.

Crawford—brook trout, East Branch Muddy Creek, McLaughlin Creek, Muddy Creek, Sandy Creek, Md. Branch Sugar Creek, Mosey Run, Kelly Run, Brannon Run, Petrick Run.

Cumberland—brown trout Letort Springs Run, Mountain Creek.

Dauphin—brook trout, South Fork Powels Creek.

Elk—brown trout, West Branch Clarion River, West Branch Clarion Creek, Driftwood Branch.

Fayette—brown trout, Little Sandy Creek.

Franklin—brook trout, North Branch Little Antietam Creek, Trout Run, Carbaugh Run.

Huntingdon—brook trout, Shavers Creek; brown trout, Standing Stone Creek, Spruce Creek, East Branch Standing Stone Creek;

pickerel, Penn Central Dam on Raystown Branch Juniata River; catfish, Penn Central Dam on Raystown Branch Juniata River; sunfish, Penn Central Dam on Raystown Branch Juniata River.

Jefferson—brook trout, Camp Run.

Laurel—brown trout, Big Chickies Creek, Rock Run, Fishing Creek.

Lebanon—brook trout, Hammer Creek, West Branch Hammer Creek, Backman Run.

Luzerne—brown trout, Lehigh River.

Lycoming—brook trout, Plunketts Creek.

The Rights of Children in Rivers

An Editorial

By Ben Hur Lampson, Editorial Writer, The "Portland Oregonian"

Under the crag where the ouzel sings,
And the ivied wall where the church-bell rings,
Undefined, for the undefiled;
Play by me, bathe in me, mother and child.

NOW that was the selfsame crag down which small Tom breathlessly clambered, beyond Harthover—the small and sooty Tom—in Charles Kingsley's dearest of tales, "The Water-Babies." And the river, of course, was an English river, wherein the puzzled little chimney-sweep washed all his grime away, and whose bright current bore him far to strange adventure. And yet, for so it is with rivers, the song in Kingsley's strange and gentle book, whereof each chapter is understanding and sympathy, the lines might worthily have been written of one of our own rivers,—of one of our own rivers before ever it quits the hill, meadow or forest for cities and towns and the factories that men build beside water. It might have been written of one of our streams before ever the clearness and healing of hill-born water was tainted by the wastes of thousands of people and the casual foulness of industry.

But the stream that received small Tom, the stream that was heartsease, with "every pebble at the bottom bright and clean," laughed on and on in that unforgettable story of childhood, until at long last—but much too soon—it came to an English city, where all its brightness was darkened and all its laughter stilled. And none might go gladly to it then, as small and fugitive Tom had gone, for the gladness and healing of the flowing water, the birthright of children, had been quite stifled by shame. And to you who have read "The Water-Babies," to sorrow and rejoice with its perplexed and fugitive little hero, you cannot but remember how it was then with the river. How it was in these lines:

Dank and foul, dank and foul,
By the smoky town in its murky cowl;
Foul and dank, foul and dank,
By wharf and sewer and slimy bank.
Darker and darker the farther I go,
Baser and baser the richer I grow,
Who dare sport with the sin-defiled?
Shrink from me, turn from me, mother and child.

An English river, far away, and yet our river, too. For in their precise and scientific prose our doctors have uttered these same charges, and freighted them with dread, of the rivers that flow past our doors. These rivers of ours, so they have warned all mothers, must be forbidden to children. The shadow is over and in the shamed water that once was a birthright—a birthright still, although stolen away—the shadow is illness and death. There is no joy in such rivers, and doctors do well to warn mothers lest children go to the river as to a destined playmate, and have only sorrow and pain to requite their instinctive belief in the goodness of rivers.

One has heard, now and again, of opinions which hold that the cleansing of rivers, by the treatment of sewage and disposal of wastes, must somehow be bad for business—since the cost is computed in dollars. Of all the strangeness that may be encountered in the strange, enchanted adventuring of small Tom, there is nothing whatever to compare with the stupid, cruel strangeness of this grotesque assertion. Is the restoration of the birthright of children, the cleansing of a river, evil for business? How monstrous is this imagining. Why shouldn't it be good for business, since it is good for children, to cease from defiling a river? Until

Like a soul that has sinned and is pardoned again,
Undefiled, for the undefiled;
Play by me, bathe in me, mother and child.

The fishes turn back from the tainted water that will not give them life. Yet there are those who will say, when the cleansing of rivers is urged, that sportsmen are speaking selfishly for their sport. But the very fishes are telling us that the river, which was born to a ministry of beauty and gladness, is so defiled that children may approach it only at their peril. And do the cautious critics of the cleansing of rivers dare represent that water which is death to a fish is excellent in every way for the child? The code of ethics and morality, the fundamental laws of sanitation alike require the cleansing of our rivers, until again these streams are undefiled.

You who have children, you who believe in the decency of man and the obligations of citizenship and our common humanity—you who believe in the birthright of rivers—must work and, when occasion offers, vote for the cleansing and restoration of the streams of America. Let them be again as was that English stream to which small Tom descended, when he had gone down the steep crag beyond Harthover. Let them be again as they were in our American yesterday.

Black Hole Creek; brown trout, Larrys Creek, Rock Run, Loyalsock Creek, Lycoming Creek, Muncy Creek.

Mifflin—brook trout, Brooklyn Run; brown trout, Long Meadow Run, Penns Creek, Strode Run.

Monroe—brown trout, Lehigh River, Brodheads Creek, Paradise Creek, Middle Branch Brodheads Creek, Pocono Creek, Pohopoco Creek.

Northampton—brook trout, Martins Creek, Monocacy Creek.

Perry—brook trout, Shermans Creek, McCabes Run.

Schuylkill—brook trout, Kombs Creek, Beaver Creek, Rattling Run.

Somerset—brown trout, Laurel Hill Creek, Raystown Branch Juniata River, Clear Shade Creek, Flaugherty Creek.

Sullivan—brook trout, Double Run, Rock Run, Pole Bridge Run, Black Creek, Lick Creek; brown trout, Loyalsock Creek, Little Loyalsock Creek.

Susquehanna—rainbow trout, Starrucca Creek.

Tioga—brown trout, Pine Creek, Cowanesque River, Tioga River, Pine Creek.

Union—brook trout, Corl's Run; brown trout, White Deer Creek, Penns Creek, Laurel Run, White Deer Creek.

Venango—brook trout, Panther Creek, Mill Creek, Horse Creek, Hemlock Creek, Cherry Run.

Warren—brook trout, Northwest Branch Spring Creek, Pine Creek, East Hickory Creek, East Branch Caldwell Creek, Little Brokenstraw Creek, Six Mile Run, Farnsworth Creek.

Wayne—rainbow trout, West Branch Wallenpaupack Creek; pickerel, Lake Como.

York—brook trout, Rehmyer Hollow Run.

TO KILL SNAKES ON CEDAR RUN

Cedar Run, famous north tier trout stream, has entirely too many watersnakes for the best interests of its trout population, according to Warden John H. Krausse of Cammal. Recently, while patrolling this stream, he shot seven of these reptiles in an afternoon. He and Norman Worthington, forest ranger at Leetonia, forthwith planned a snake killing campaign in which boys from a CCC camp in that vicinity were to participate.

The largest game fish to be taken this year from Pine Creek, according to Krausse, was a 30-inch wall-eyed pike weighing 7½ pounds. The name of the angler making this catch was not reported, but he is said to hail from Jersey Shore.

JUNIATA BASS

From Warden C. V. Long, East Waterford, comes word of good fishing on the Juniata and tributaries. Fishing in the river below Saxton, Robert Adatson, of Kulpmont made a fine bass catch on shiners. The largest fish in his catch measured 21 inches in length and weighed four pounds. Another bass in the catch measured 18 inches, two touched the 17-inch mark, and four were 16 inches apiece.

A 20-inch pickerel was taken in Tuscarora Creek on pork rind bait by Alton Meloy, Port Royal.

"City" Bass and Pike

"City" bass and wall-eyed pike, you might as well term them that, for they were caught right in the shadow, so to speak, of the state capitol at Harrisburg, were striking well in August and September. And just to prove it, here's a report from Warden Frank Sanda of Steelton concerning the fishing ventures of two Harrisburg anglers.

It seems that on August 30, Russ Carpenter and John Dunlap of Harrisburg decided to try their luck at bass fishing below the Dock Street dam, virtually in Harrisburg. Six smallmouth bass, ranging in weight from 1½ to 4 pounds, and a wall-eyed pike, 18 inches in length, were taken on live bait.

But here's the cream of their catch, and it was made immediately following the rainfall on September 3. Fishing live bait, shiners and chubs, at the same location, they landed four wall-eyed pike, better known in this neck of the woods as "salmon." Those four salmon were 23 inches, 26 inches, 27 inches and 29 inches in length, respectively.

Just another booster, this brief report, for the fishing some of our city anglers may find right at their own back door.

MONTGOMERY OUTING OUTSTANDING SUCCESS

Rainfall in surrounding countryside did not spoil the annual outing of the Montgomery County Fish, Game and Forestry Association at the Benny Cassel farm at Penn Square. The outing was regarded as the most outstanding in the history of the Association, one of the foremost groups of sportsmen in southeastern Pennsylvania.

After an afternoon of varied sports entertainment, a supper was served in the picnic grove to conclude the program.

One of the highlights of the day was a dog show at which Dr. Harry B. Steinbach, prominent Norristown veterinarian, acting as judge, praised the collection of fine dogs assembled.

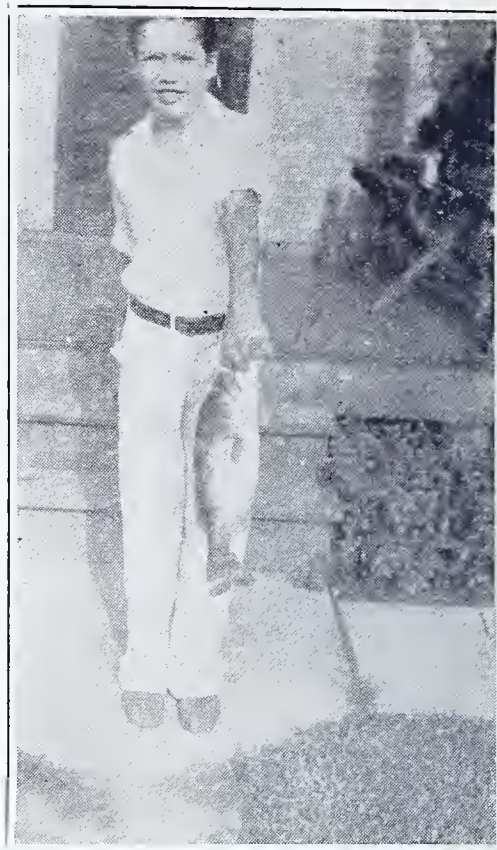
Dr. Steinbach made the event doubly interesting by explaining things show judges noticed in their work to award prizes.

French Beagles Victorious

The beagles brought to the show by J. Hansell French, secretary of Agriculture, won all three prizes in that event. Adolf Muller, former state chairman of the game board, entered a winner in the spaniel class, DeKalb Fluck, T. J. Carroll, of Conshohocken, had the prize-winning English setter while a Limerick entrant, L. Remington, carried away the Irish setter prize. The champion pointer was owned by T. J. Brindle, Norristown, while a dachshund, owned by E. F. Brouse, district forester of Washington Square, was the only bowser class entrant.

Judge Wins at Quoits

Among the other sport features was Judge Harold G. Knight, president of the association, winning his own prize offered in the quoit tournament. It was given to his teammate E. G. Smith, of Oaks, who helped him defeat Howard Hampton and Howard Beidler, Upper Merion farmers, 21 to 15, in the exciting final match.



DICK TEMPLIN WITH A 3¼ POUND LARGEMOUTH BASS CAUGHT IN BUTLER DAM NEAR BUTLER

Beidler and Hampton prevailed in the lower bracket by defeating Hunsberger and Royer while Judge Knight and Smith overwhelmed Warren Zeigler and L. Heebner in the upper bracket.

Quoit Contestants

Thirty-six tossers entered the tournament arranged by Martin Horn, warden of the Montgomery county prison. Contestants included Judge J. Burnett Holland and Paul Hunsberger, clerk of courts. Other entrants were F. C. Yost, E. Thompson, H. C. Shafer, H. K. Dunaway, John M. Weber, B. C. Washington, H. E. Curll, H. M. Walton, G. H. Smith, D. Famous, H. Zcleski, J. Eisenberger, H. Evans, E. C. Clymer, Jr., Irvin Gill, Frank Trout, R. Schall, H. Harrington, J. Royer, Paul Bean, Nelson Schlotterer, A. Knight, Dr. Miller, C. E. Brouse, Art Schmoyer, F. Price and Earl Heebner.

Special Trap Shooting Match

In a special trapshooting match that attracted much attention, Judge Knight defeated Judge Holland with the gun, 23 to 21. Ambrose Gerhart's 24 was high score for the day. The list of breaks:

Cole, 21; Remington, 19; Walton, 15; Bean, 8; Collins, 13.

E. Smith, 23; Yeager, 12; Bullen, 5; Pedrick, 3.

Muller, 14; Gill, 19; Isenberger, 18; Carroll, 10; Cole, 19.

Muller, 14; Gill, 16; Isenberger, 20; Cole, 18; Bean, 11.

Bertolet, 22; Yocum, 19; Swartzlanger, 14; Gordon, 21; Cole, 10.

Gerhart, 22; Hartman, 13; Carroll, 20; Weber, 16; Cole, 17.

Hunsberger, 13; Bean, 13; Isenberger, 14; Sweigart, 16; Weber, 15.

Hunsberger, 15; E. Smith, 18; G. Smith, 22; Sweigart, 12; Muller, 11.

Zeigler, 11; Gerhart, 24; Harbison, 11; Cole, 14; Hunsberger, 14.
Miller, 19; Woodward, 7; Muller, 17; Gill, 14; Yocum, 18.

Dog Show Results

The dog show results:
Beagles—J. Hansell French's Delmont Scout Sire Ch., Delco Mirror, first; French's Luckee Dix, second; French's Lucky Music, third.

Spaniels—Adolf Muller's DeKalb Fluck, first; C. K. Shaw, of Whitehall road, Skipper, second prize.

English Setters—T. J. Carroll, Conshohocken, first prize; Reuben Shaw, Norristown, second; E. C. Washington, third.

Irish Setters—L. Remington, Limerick, Princess II, first prize; Dr. Willer, Collegeville, Prince I, second prize.

Pointers—T. J. Bindle, Norristown, R. D. 1, first prize; J. Hansell French, Collegeville, second prize.

Bowser—E. A. Brouse, Washington Square, first prize.

Tug-of-War Victors

E. C. Clymer's tug-of-war team won that exciting event.

The members of the winning tug-of-war team, representing the Hunters who out-tugged the Fishermen, were Alan Wood, Irwin Gill, Benny Cassel, Paul Hunsberger, Jim Bullen, Norman Pedrick, Jim Schmoyer, John Royer, Harry Burns and Will Collins.

In the baseball game, Lloyd Heebner's hunters defeated Ernest A. Heebner's Fishermen in a thrilling contest, 10 to 9. Leon Nester twirled for the losers while Lloyd Heebner did the hurling for the victors. Judge Knight and Warden Horn were on the right side as the five-inning tilt provided plenty of action, the winning run being put over in the last inning by G. Warren after L. Heebner had tied the count.

DR. MOORE LAUDED AT TESTIMONIAL DINNER

In recognition of Dr. William H. Moore's service to Pennsylvania as a member of the State Board of Game Commissioners, from which he retired a few months ago, more than 300 prominent outdoor sportsmen and conservationists assembled at a testimonial dinner at the Bellevue-Stratford in September.

Adolf Muller, of Norristown, former president of the game board, was chairman of the dinner, and Dr. George Levis was toastmaster.

Mr. Muller hailed the guest of honor as one of the foremost authorities in the country on the propagation of ring-neck pheasants and bob-white quail. He called attention to the world record in the production of these species established at the John S. Fisher State Game Farm in Montgomery County under the advisory supervision of Dr. Moore.

Brief addresses of tribute were made by Joseph Hiestand, president of the Philadelphia Chapter of the Izaak Walton League; Nathan Pechin, sheriff of Delaware County; Samuel P. Orlando, prosecuting attorney of Camden County; Edgar W. Nicholson, president of the Pennsylvania State Game and Fish Protective Association and a member of the State Fish Commission; Dr. Van Deusen, director of the Phila-



ONE OF THE UNITS OF NEW BASS HOLDING PONDS AT THE PLEASANT MOUNT HATCHERY, WAYNE COUNTY

delphia Aquarium: Judges Harold C. Knight, William F. Dannehower and George Corson of the Montgomery County Common Pleas Courts; the Rev. James Niblo, rector of St. John's Episcopal Church of Norristown; Deputy Attorney General Grover C. Ladner; Leslie Blackburn, Bedford; E. D. Haehnle, Bethlehem; Major Nicholas Biddle, president of the State Game Commission; Ernest E. Harwood, executive secretary of the State Game Commission; Seth Gordon, of Washington, D. C., secretary of the American Wild Life Institute; H. R. Stackhouse, executive secretary of the State Fish Commission; Kenneth A. Reid, of Conneville; and Milton Peek, of Devon, members of the State Fish Commission; Dr. Charles F. Nassau, O. L. Detwiler, John Schleinkoffer and Fred Haegele, of Hazleton.

Major Biddle presented to Dr. Moore, in behalf of the game board, a scroll inscribed with a resolution adopted at the last meeting of the commission. The resolution, which has been spread upon the board's minutes, eulogizes him for his devotion to the welfare of the State's hunters and fishermen.

Mr. Muller presented a motion picture camera and projector to Dr. Moore.

BERKS SPORTSMEN WORK TO IMPROVE STREAMS

Warden W. E. Wounderly of Reading reports splendid progress in stream improvement work by organized sportsmen in Berks County this year. On June 11, the Berks County Chapter of the Izaak Walton League built a deflector at Slopewall. Fifteen men assisted in the work.

The Northwestern Rod and Gun Club built 67 deflectors and dams on Mill Creek in Bethel Township. Twenty-five men assisting in this work made a splendid job of it. Two dams and 10 deflectors were built in Hassler's Run, Tilden Township, a tributary of Mill Creek, by the West Hamburg Fish and Game Association. Twenty men helped on this project.

A nice catch of bass was made in a dam on the Tulpehocken late in August by George Hart of the Palisades Country Club, according to Wounderly. Three bass, one 16 inches, one 16½ inches and the other 17 inches comprised the catch.

BOARD OF FISH COMMISSIONERS HARRISBURG, PA.

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Enclosed find fifty cents (\$.50) for one year's subscription to PENNSYLVANIA ANGLER.

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City



HERE ^A_ND THERE IN ANGLERDOM



With cooling of the water and concentration of bass, wall-eyed pike and pickerel in the deeper pools of many Pennsylvania streams, some of the best catches of game fish of the year are in the offing for our anglers this month. Autumn fishing finds the plug caster in his heyday, for the big fellows are invariably on a striking rampage during October and November. Live bait fishermen also find definite improvement in their sport, as the bass in particular are storing up surplus fat to carry them through the winter months of semi-hibernation, and, in consequence, feeding voraciously. A general and apparently well-founded belief prevails among many of our fishermen that this autumn there are more bass in the streams than at any time during the past ten years. Light catches, owing to high and muddy water during the summer months, are one factor to back this belief, and without doubt, the amazing bass increase through ideal spawning conditions occurred again this year.

Bass catches in the vicinity of the Newton Hamilton dam on the Juniata River have been good this season, reports Warden Bill Keebaugh. Anderson Rodgers scored with a 3½ pound smallmouth, while on September 2, Bill Carbaugh landed four dandies.

Miss Helen Brumbaugh of Altoona takes rank with the anglers this season who are members of the "Bass Over Three Pounds Club." Fishing in the famous Raystown Branch of the Juniata River at Cipher Beach, Bedford County, she landed a 19-inch smallmouth weighing 3½ pounds. Robert Adolphson of Coalmont landed four smallmouths, the largest 21 inches, and the others 18 and 17 respectively. An 18-inch smallmouth weighing 3 pounds was caught in the Branch by Chester Shull, secretary of the Sportsmen's Association of Wolfsburg. On the same day, writes Special Warden Harry Moore, Hopewell, who reported these catches, he creeled seven other smallmouth bass ranging in length from 10 to 14 inches.

The jinx that seems to persist over nice catches of bass being made when the water is muddy, was broken by Piper Barton of Emmaville on July 4, according to Warden Bill Keebaugh. Fishing in Licking Creek, Fulton County, Piper caught nine smallmouth bass, ranging in length from 11 to 17½ inches.

Included among the great catches of wall-eyed pike being made this year in Lake Wallenpaupack is that of Ernest Gregory, Dunmore, on August 14, according to

Acrobatic Bass

Those fighting smallmouth bass of the Allegheny are developing into real acrobats, and Dr. C. G. Sorgan of Butler is now more than ever convinced of this fact, according to Special Warden J. H. Bergman. Apparently Dr. Sorgan doesn't need line, hook and bait to entice the scrappy bronzebacks into his boat.

At any rate, while fishing near the shoreline of the river near Parker, a 14-inch bass accommodated him by leaping into the boat. Usually, when this occurs, and it does sometimes, the boat is being propelled through shallow water, but the bass in question didn't even need that incentive to pull its stunt.

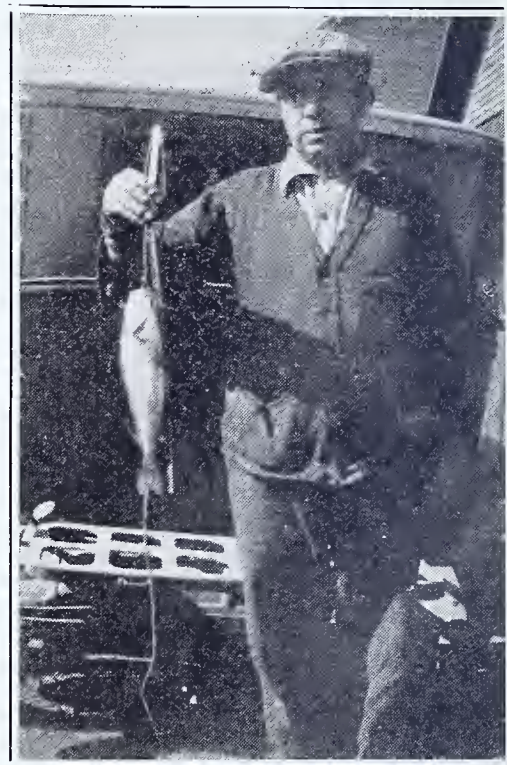
Warden Edgar Davis. He landed four pike having a combined weight of 22½ pounds. The largest fish in the catch weighed 7½ pounds.

Owing to the fine stream improvement program carried out on Piney Creek, Blair County trout stream, by interested sportsmen, this stream furnished unusually good trouting this year, according to Warden Link Lender of Bellwood. One of the nicest brown trout taken was that landed by Stewart White of Johnstown on a grasshopper. It measured 19 inches in length.

A nice catch of rainbow trout was made on Laurel Hill Creek in Somerset County, by Charles Wertz of Johnstown. Nine beauties, ranging in length from 10 to 14 inches, were taken. Favorite trout baits with Wertz are crickets and flies.

Fishing luminous plug at night on the Allegheny near Tidioute, Leslie Barnes of Tidioute made a catch of smallmouth bass having a combined weight of 30 pounds, writes Warden R. C. Bailey of Youngsville. The largest bass in the catch measured 19½ inches, two were 18½ inches, and the rest of the creel, with the exception of one 13 inches, all topped 16 inches in length.

Pine Creek, above Waterville, is furnishing good bass fishing this season, reports Warden John Krausse of Slate Run. Ed Schnars of Renovo landed 10 bass from 10 to 13 inches and a wall-eyed pike 16 inches in length. Howard Crouse, Williamsport, made a catch of 10 bass, 10 to 14 inches in length.



HERMAN RAUSCH, BUTLER, WITH AN 18-INCH YELLOW PERCH FROM ONEIDA DAM

A three-pound smallmouth bass that broke his rod was landed in spite of the handicap by Fred Liebtren of Harrisburg at the tip of McCormick's Island in the Susquehanna River. It was 19 inches in length and struck the lure near a grass patch in the river.

According to Warden J. H. Simmons of Rochester, Beaver County, Brush Creek in that county has been furnishing good bass fishing this season. Among those making catches were Burgess Alex Pearson, his son Fallston, and Sam Lewis.

One of the first wall-eyed pike to be taken from Twin Lakes in Pike County was caught last season according to Professor Stutsman. The fish was 14 inches long. About five years ago, Twin Lakes was stocked with wall-eyed pike fry.

H. W. Foux of Wyoming, caught a smallmouth bass, measuring 17 inches, and James Loftus of West Pittston, caught a smallmouth bass, measuring 15 inches, in Tunkhannock Creek on the opening day.



SUPERINTENDENT TED DINGLE EXHIBITS TWO TYPICAL SPECIMENS OF THE TROUT BEING PRODUCED AT THE NEW HUNTSDALE HATCHERY, CUMBERLAND COUNTY. ABOVE, LEFT, SEINING FISH FOR STOCKING; RIGHT, ABOVE, PLACING THEM IN PAILS FOR DISTRIBUTION

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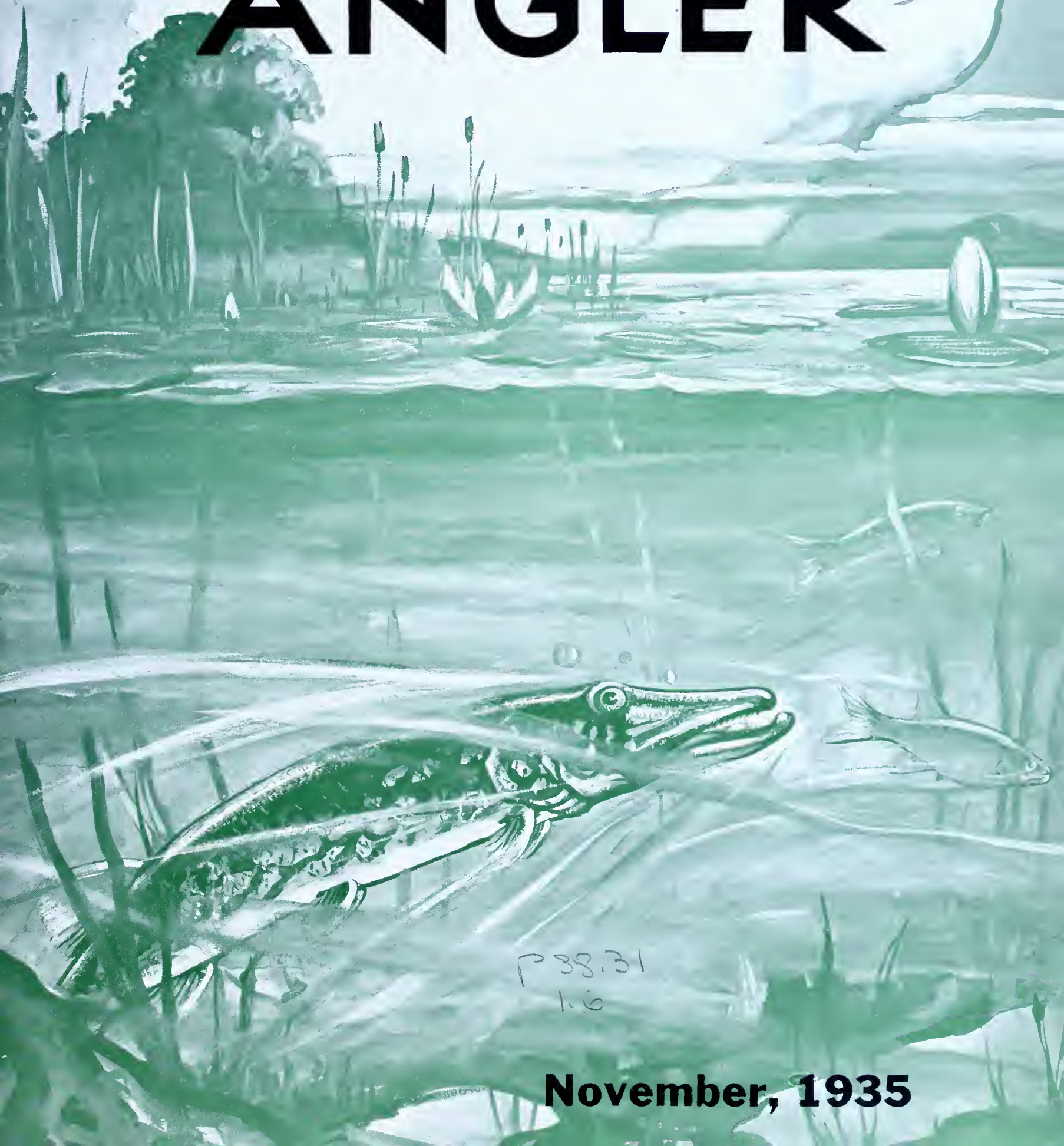


A SPORTSMAN'S CREEL OF TROUT

*“If You Would Catch More Fish—
Kill Less”*

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ALEX P. SWEIGART, *Editor*

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EDITORIAL

Junior Sportsmen

It is my belief that the conservation movement, not only in Pennsylvania but in the United States, can have no more vital asset than the education of our boys and girls in the essentials of good sportsmanship. Future generations must determine success or failure of conservation policies in the years to come, and with this thought in mind, the sportsmen of today are in a position to lay a firm foundation for the sports they love.

After all, this task is not difficult. The average American boy or girl is born with an inherent love of the out-of-doors. Instinctively, the boy, equipped with a "fishin' pole," coarse line and hook, grasps the fundamentals of worm-fishing in an amazingly brief time. He may only catch a few sunfish, chubs or catfish in an entire season, but the contentment and joy he derives from this sport of fishing is to be measured in terms of healthful outdoor exercise beneficial to mind and body. He is, primarily, on the right road to good citizenship, and the lessons that he grasps in observing nature's wonders tend to round out developing character as few others may.

Go to almost any Pennsylvania fishing stream today, and chances are, ten to one, you will see a number of boys patiently trying their fishing luck. These boys are sportsmen in the making, and I feel that it should be every sportsman's objective to pause long enough to explain to them the principles of law-abiding conservation. In most instances, our youthful anglers have no thought of violating the fish laws when they retain an undersize game fish. Many of

them do not know the essential differences in shape, coloration and build of our inland water fishes. Unfortunately, size limits also are too scantily known. Our licensed anglers are in a position to do much vital conservation work in this respect, with the knowledge that their efforts may carry on into succeeding generations.

A great deal has been written concerning the companionship of father and son, astream and afield. To few, who have known such comradeship, can our world of today give anything finer. Observe, some day when you are fishing, a dad and his son in action. Note the manner in which the boy imitates his father in casting, in the carrying of the creel, and as nearly as possible the landing of a fish. Youth is imitative and grasps quickly the fundamentals of good sportsmanship. When he sees his dad carefully release an undersize game fish, he attempts to do the same. So intent is he in following this most ancient of sports that all other thoughts are summarily dismissed. With proper guidance in the fine code of conservation, why shouldn't he develop into a fine sportsman?

Unfortunately in far too many instances, boys going into the out-of-doors are left to follow their own devices at random. Certainly, we, of the present generation, must be held responsible if they revert to the code of the killer that predominated during the nineteenth century. As I have said before repeatedly, fish and game conservation today cannot stand for the "fish hog" or the "game hog." Pennsylvania today enjoys its distinction as a leader in conservation chiefly because the slaughter code



PHOTO BY C. FRANK HOYER

has given way to common-sense seasons and bag limits.

There are many hurdles to be cleared before we attain the peak in effective conservation, but the education of our youth to methods of good sportsmanship is the greatest barrier ahead. We can do it. It will require patience, of course, and perhaps some trying effort, but if the "tall hurdle" is cleared, future generations must benefit.

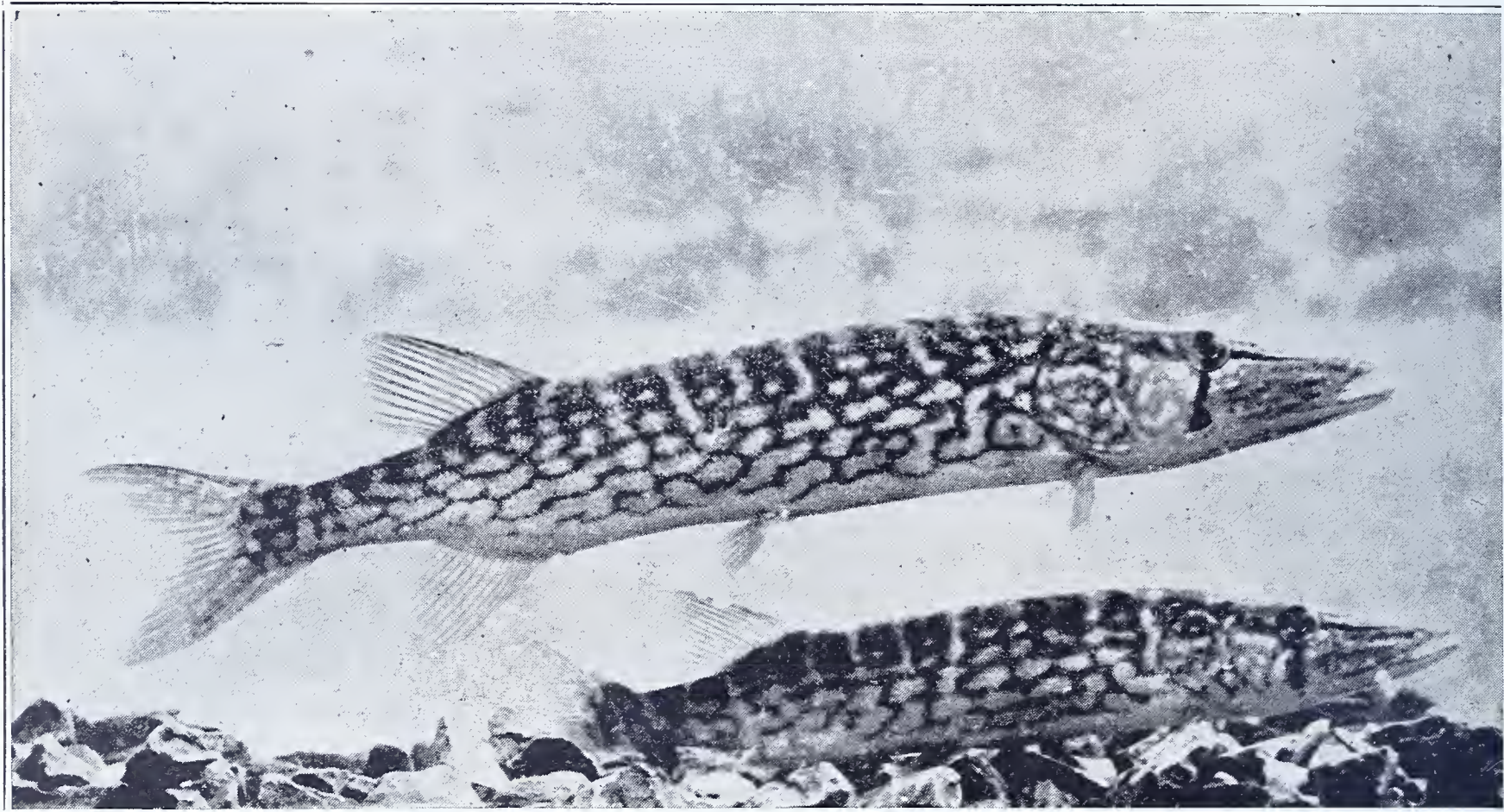
Our drive for better fishing here in Pennsylvania cannot, to my mind, achieve a more splendid objective than that of instilling the conservation code in the youth of today.

M. Deibel

Commissioner of Fisheries

Esox, the Voracious

Life Sketch of a Chain Pickerel



ESOX reticulatus, the giant chain pickerel, symbolized nature's perfection in stream-lining as he lurked in the sunken branches of a massive buttonwood. Six months after the buttonwood had toppled, with rending crash before the onslaught of a mighty wind into the creek, Esox had established his home in the tangle of its branches. It was an ideal lair, every factor considered, for the big pickerel. In the shadowy recesses of the dead tree, he could await his prey—minnow, small sucker, or virtually any species of fish present in the stream. The strike came with amazing swiftness, his lithe form darting with shadowy speed at the prey, then poising for perhaps a minute with the victim between vicious fang-armed jaws prior to turning and swallowing it head first.

But, ideal as this lair happened to be as a place of concealment, it served another purpose, as three corroded steel hook shanks in his duckbill-shaped jaws indicated. If by chance he struck at the lure of a fisherman, his six pound weight enabled him in the first rush after the barb had been set, to dart into the tangle of sunken branches. Once in this ideal refuge, he had invariably been able to snap the line.

On this October morning, when mist was rising from the water and frost had coated the brush along the shoreline, the refuge of Esox was to fail him. For three years, his great size and habits had been a source of conversation not only with local anglers but fishermen who came to this stream from

points 50 miles distant. It was generally agreed by those who had been fortunate enough to set a hook in the big pickerel that the only possible way in which he might be taken was to stop him on the first rush for his lair.

That thought was uppermost in the mind of the plug caster who chanced to find Esox in a striking mood on this October morning. As the greenish swirl of the pickerel followed the plunk of the plug near the buttonwood, he stopped the big fish just short of the sunken branches. Momentarily balked, Esox swiftly turned upstream, the speed of his first frantic run causing the line, that had just come perilously close to breaking, to slice through the water in a graceful arc. Unlike his rival for the live food supply in the creek, the smallmouth bass, Esox fought a twisting, rolling type of battle. But the set of treble hooks on the plug held firm, and in fifteen minutes the big pickerel was lifted from the water as the fisherman secured a firm grip beneath the gills.

No other fish of the inland waters could boast a more perfect record of voracity, destruction and wanton cruelty than Esox reticulatus, the eastern chain pickerel. Of the prominent game fishes in the fresh water as we know them today, smallmouth bass, largemouth bass, wall-eyed pike and pickerel—he alone was native to our streams and lakes, the others had been introduced by man. Of course, there was an exception

to this rule in his giant cousin, the Chaumatouqua muskellunge, but the range of this fish is limited to a few lakes and streams in northwest Pennsylvania.

Come to think of it, there is a great deal of glamour in the history of the chain pickerel in the Keystone State. The red man, stealthily making his way along stream, pond or lake saw the glinting, slender green shape of Esox dart from reed grown coves; the first settlers who courageously ventured beyond the mountain barriers to establish homes in Penn's Woods were well acquainted with his habits. He had endured despite the incursions of ever-growing numbers of introduced smallmouth bass and wall-eyed pike. And surprisingly, perhaps, in some waters his species had held its own.

It was early spring, just about the first of April ten years before, that Esox, the pickerel, had come into being. The great sucker run had started up one of the tributaries to the stream, hundreds of these bottom feeders, some exceeding 20 inches in length, milling about during the night as they struggled over shallow riffles. Over the same course, the parents of Esox had made their way, with apparent ease and little if any flurry moving to the spawning ground in a shallow pool well up in the run. There the female deposited her eggs, without bothering to conceal them from natural enemies (for these were few in the brook), and they were fertilized by the male. Both fish then returned to the main stream.

There were not many eggs, considering the size of the spawning pickerel, only about 1500 of them. Nature compensated for this apparent scarcity of spawn by offering few obstacles to the hatching and growth of the baby pickerel.

Not all the pickerel in other bodies of water, such as lakes and ponds, ascended tributary streams to spawn, however. Sometimes, in spring fed glacial lakes of northeastern Pennsylvania, the parent fish moved into shallow, weed grown bays to perpetuate their kind. There the young found abundant protection, and later fed upon the myriads of baby yellow perch that were slower in growth. Later, the golden shiners of lake and pond were to furnish abundant forage.

In the instance of *Esox*, he emerged from the egg about two weeks after it had been deposited, with a prominent yolk sac attached. From this yolk on the underpart of his shape, just back of the head, he derived nourishment for about two weeks. Then tiny crustacea and forms of aquatic life furnished him with forage until he attained a length of possibly an inch and a half. During the early stages of his growth he was exceedingly slender and graceful, a distinct bar effect being present on his sides. Of the fresh water fishes, this baby pickerel was perhaps most delicate. Even a slight injury might prove fatal. Perhaps there was in the great plan of nature some consideration of this fact, hence the efforts of the adult fish to reach secluded waters where enemies were few.

The development of *Esox* during the first year of his life, in fact, during the first five years, was in length rather than girth. An abundance of young dace, tiny silver shiners and the young of the run chubs furnished ideal forage possibilities in the brook. Even during the winter, when ice had formed over the run, he and others of

the brood were active. Of course, in the low temperature water, they did not feed extensively, but their habit of remaining on the alert during the winter months was in direct contrast to that of the introduced bass, which entered a period of dormancy in late November.

By the second year of his life, *Esox* had attained a length of slightly better than seven inches. His cheeks and opercles, or gill covers, were entirely scaly, covered with a fine mesh of scales. There was a prominent black spot, dropping downward below each eye. In body color, he was green of varying shades. On the sides was to be seen a golden lustre, marked with dark lines and streaks. These horizontal lines were joined together in a manner that formed a reticulated or chain-like effect, hence the name "chain pickerel." The fins, plain in color, were of prominent size. Above the anal opening was the dorsal fin, situated well back and directly over the anal fin. All of the fins were soft rayed, in contrast with the spiny rayed fins of the bass. His long, slender jaws, armed with sharp piercing teeth of varying sizes equalled half the length of the head.

After he had dropped down to the main creek from which his parents had come on the spawning run, *Esox* found an abundance of food in the form of forage fishes which he devoured with amazing voracity. Apparently the hunger and lust to kill of this rapidly growing pickerel was unequalled any place in the water world. By the sixth year of his life he had attained a length of 23 inches, and had also started to develop heavy girth. His kind was longer lived than most of the other game fishes of the inland waters and is aptly described by Jordan and Evermann as "mere machines for the assimilation of other organisms." *Esox* was a confirmed cannibal, striking without hesitation at another smaller mem-

ber of his own species and devouring it when opportunity was presented.

During the heavy feeding months from spring until late autumn there was only one temporary truce in his voracity. That came during the so-called "dog days" of August. Then his vicious fangs became quite loose in the jaws, and he fed sparingly. The fast over, *Esox* apparently made up for lost time in destruction and the autumn months found him killing with an almost insatiable lust. Only one requisite was necessary to bring a strike from the big pickerel and that was movement. Live, moving food formed the basis of his diet. On several occasions, he managed to pull ducklings beneath the surface of the stream, drowned them and dined on waterfowl.

His range in the stream was not extensive. Generally it centered at the sunken tree, but occasionally he cruised to other places on the big flat in quest of food. In night feeding, this frequently occurred. In taking prey, he was the lurking type of killer, waiting until some unsuspecting fish swam within range of his hiding place, then striking with glinting swiftness. There were times, too, when literally gorged with food, he struck and killed apparently for the love of slaughter. Live bait used by fishermen was sometimes grasped between his jaws, and held until the fisherman pulled on the line. Once struck by *Esox*, a dead bait was almost certain to be the fisherman's reward.

A characteristic probably responsible for more escapes by *Esox* from the angler than any other was the rather thin structure of the mandibles or jaws. These tore easily after the hook has been set, and as the fish twisted about in its efforts to break away, the barb was frequently dislodged.

The capture of *Esox* was to prove, in a way, of direct benefit to the stream in which he lived. To satisfy his voracious appetite, the toll taken not only from forage fishes, but food fish and game fish as well, was a constant drain on that section of the creek. Typical of the family he represented, *Esox* during the span of his life was one of the outstanding predators on fish life in the inland waters. From the angler's viewpoint, however, there is certainly an added suspense and thrill to fishing in water known to be the haunt of a giant game fish. All of which just about tends to make the score on *Esox* the Voracious even.

Esox, the Voracious, is fifth of a series of articles by your editor on the life habits of Pennsylvania game fishes.



A SPORTSMAN

Is one who is fair, reasonable and a respecter of the rights of others. He plays the game according to "The Law" or the rules governing the sport he plays.

Stream Improvement

STREAM improvement in Pennsylvania last summer had three major phases. Sportsmen taking an active part in work of this type were central figures in the campaign for better fishing. The Fish Commission, in sponsoring stream improvement, carried through two other essential features of the program; first, increased facilities for fish production, and second, a practical demonstration of stream improvement at the Spring Creek Project. Enthusiastic participation of fishermen in many parts of the state marked the stream betterment campaign and results of the work are highly encouraging.

The general idea advanced in this program is that an ideal trout stream combines three vital factors, food abundance, proper water temperature, and good shelter. Lacking in any one of these essentials, the capacity of a stream to produce trout of maximum size and number is necessarily limited. Many forms of aquatic and insect life constitute the food supply of trout. The diet range extends from tiny aquatic organisms, clinging to vegetation, logs, or rocks on the stream bed, necessary food for trout just past the fry stage, to the crayfish and cold water species of minnows, food for larger trout. Insect life, which, of course, is only available to trout during a limited period of the year, constitutes an important factor in the forage classification. Food accidentally washed into a stream, for instance, the earthworm, also should be mentioned. To a major extent, the abundance of food supply in a stream hinges directly on the cover available, not only on the bed of the stream but in the presence of foliage along the shores. Water temperature, which should have a maximum range not exceeding 70 or 72 degrees in summer, is governed chiefly by shade on the main stream and its spring water tributaries, by the speed of the current, and the amount of low temperature water poured into the main stream by the feeders. By providing more abundant cover and speeding up the current, stream improvement devices automatically tend to increase the food supply available in trout water.

Pennsylvania trout streams are of many types. A brief checkup on seven of these types, while not, in any sense of the word, covering the entire range of stream conditions, has a general bearing on the field to be covered in the improvement drive. Uniform shallow streams and streams of uniform depth comprise the first group. Current deflectors, log or boulder, constructed at bends in the stream, with the idea of concentrating the force of the current on the bank on the left-hand shore, if the curve is to the right, and right-hand shore, if the bend is to the left, are effective devices for the first group. Current deflectors are also effective in improving streams that become dangerously warm in midsummer through increasing the speed



HEWITT DAM AT SPRING CREEK, SHOWING BASE.

of the current. Cover is also a consideration in this type of stream. Type three streams, having too many small trout, may be improved by installing current deflectors to increase available food-producing areas. Waters subject to fluctuation in flow, providing they are of low temperature, constitute type four streams, and may be improved by introducing well-constructed log or boulder dams.

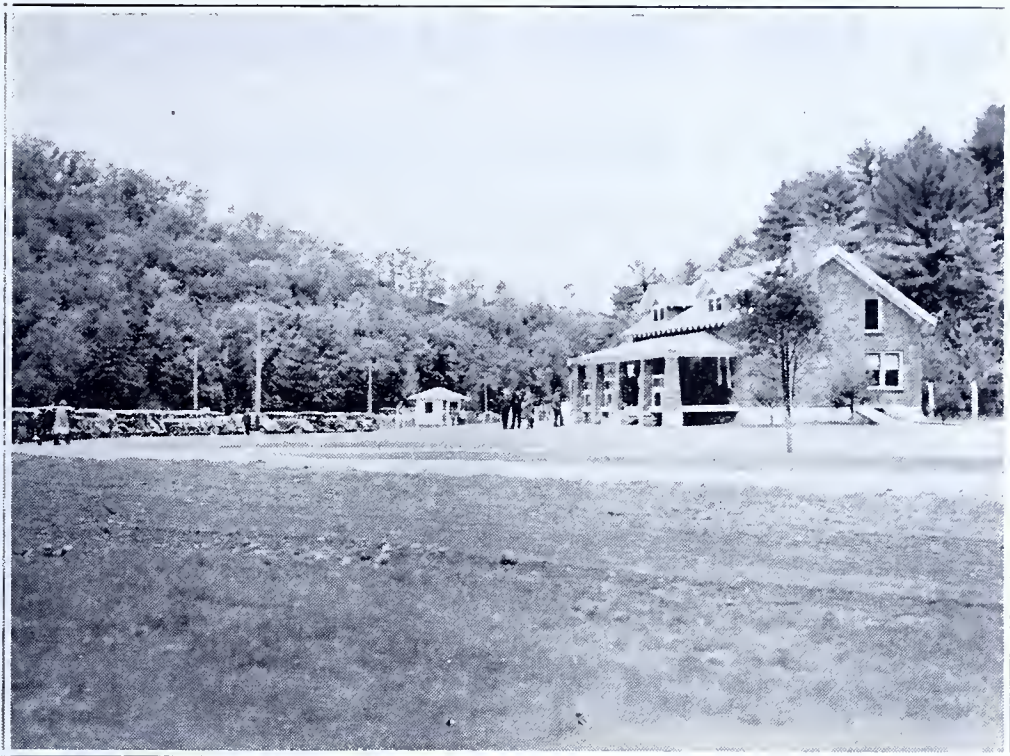
A fast, narrow channel, created by the V-type of deflector, is ideal for improvement of type five streams which have become choked with sand or muck. Covers may also be used to advantage. Streams deficient in food for trout, type six, may be improved through construction of current deflectors, log and brush covers, and planting of trees and brush on the shores. Improvement of type seven streams will constitute a definite forward step to better fishing. These streams, and there are many of them, are subjected to heavy fishing in areas particularly suitable for trout, while long stretches of water, having few if any trout, are passed up by fishermen. Shelter and current deflectors are ideal improvements for poor fishing areas on any stream. In brief, the type of stream to be improved should determine the method to be followed and improvement devices to be used.

Increased production of trout at the hatcheries will have a direct bearing on the success of the stream improvement campaign. In meeting a constantly growing demand for more trout for stocking, the Fish Commission has expanded its production program this year. Two new trout

farms, Huntsdale, in Cumberland County, and the Spring Creek site, have been developed. Huntsdale at the present time has over 250,000 trout, brook, rainbow and brown, ranging in size from fingerling to adult, in its ponds for distribution to streams approved in the survey. Thirty-eight permanent retaining ponds have been constructed.

Spring Creek bids fair to become one of the outstanding trout-producing projects in the east. Ninety-three permanent retaining ponds are now completed at this site, which is located on Spring Creek, near Bellefonte, Centre County. At the present time, over 750,000 trout are being raised in these ponds and the rapidity of their growth is attributable in large part to an ideal water supply from a giant 3,000-gallon a minute spring and Spring Creek. This increased available supply of trout for stocking purposes will dovetail nicely into the stream improvement campaign with its assurance of increased carrying capacity for trout streams in Pennsylvania.

Practical stream improvement is a feature in the development of the Spring Creek site. At the upper tip of the project, a short distance below the point where Spring Creek enters the tract, a dam of the type advocated by Edward R. Hewitt, distinguished authority on stream improvement, has been constructed. This dam, with a ledge immediately below the breast to permit easy passage of fish and the ideal trout pool formed above the breast, adequately demonstrates the effectiveness of proper stream improvement. A short distance be-



ADMINISTRATION BUILDING, SPRING CREEK.

low the dam, brush shelters and boulder retards have been placed in the stream. Spaced at intervals downstream are a number of large boulder wing deflectors, which have served to increase the current and to form ideal eddies and back water suitable as winter holes for trout. Directly opposite the Hewitt dam another winter hole has been excavated, and in the cover introduced thousands of minnows and other forage as well as young trout are to be observed.

At a point opposite the upper section of the trout raising ponds, other improvement devices have been installed. Log wing deflectors, V-deflectors and covers are features in the development of this section of Spring Creek. At Spring Creek, improvement devices particularly adaptable to Pennsylvania trout waters are displayed, and should serve as models for improvement projects to be

undertaken by sportsmen on their favorite trout streams. Spring Creek's adaptability as a demonstration project for stream improvement and the raising of trout for stocking purposes has been established.

Low water during summer months tends to make stream improvement projects highly effective. With waters in most trout streams low during July, which ranks as a favorite month for improvement work, areas most in need of betterment are revealed. From another angle, the cold water in trout streams does not have such chilling effect on the workers during the heat of midsummer days. In urging stream improvement as an aid to better fishing, the Fish Commission advocates permanency in building improvement devices. One deflector or dam, carefully constructed, is worth a dozen or more devices built in haphazard fashion.

C.C.C. CAMP SUPERINTENDENTS AND STATE FORESTERS
AT SPRING CREEK PROJECT

Champ Frog Catcher

An angler reader who desires to remain anonymous submits this one and is it good!

"A certain community in Dakota had established a reputation as a center for the catching of large bullfrogs. One man in particular stood out as champion frog catcher. Every evening the natives would gather about the stove in the little country store and swap yarns about big bullfrogs.

"One night the champ frog catcher came in and announced that that day he had captured the great grand daddy of them all. He claimed to have caught a bullfrog weighing 103 pounds, and that he had him at home in a tub. His chief rival for bullfrogging honors, a man well along in years, rose slowly from his seat on the cracker box, made a bull's eye in the coal bucket with a squirt of tobacco juice, and slipped quietly outside. The loungers watched him cross the field in the direction of the champ's home, and when he came back, after a while, they were all burning with curiosity.

"Did you see it," they asked.

"Yes," he replied, "I saw it."

"What did you think of it," they wanted to know.

"Well," he said, "I think it's about three pounds frog and a hundred pounds bull."

A CONODOGUINET CATCH

One of the finest smallmouth bass reported from the Conodoguinet Creek this season was taken on the evening of August 26 by Ray Watkins of Harrisburg. It measured 19 inches in length and weighed 3½ pounds. He also caught two 12-inch catfish. In describing his catch, Watkins writes:

"It was about 7 o'clock in the evening and I was fishing helgramites. I caught one catfish and soon after that another. When the second catfish struck the helgramite it did not tear it off, simply shoved it up the leader. So I pulled the bait down over the hook again, and decided to fish just a few minutes longer. No sooner had I made the cast when I had a terrific strike, hooked him and the battle was on. Was using a 5½ ounce fly-rod and thought several times it was going to break. Tried to net him several times but it was nearly dark and could hardly see him. However, after 20 minutes of give and take, I finally landed him. A beautiful fish and what a fighter. If there is a greater thrill than catching a 19-inch, 3½ pound bass on a 5½ ounce fly-rod, I would like to know what it is."

LADY ANGLER SCORES

Warden Horace Pyle, of Coatesville, reports two fine catches of big bass from Chester County waters. A 17-inch smallmouth weighing 3 pounds, 12 ounces was taken from the East Branch of Octoraro Creek by Mrs. Rhoda Yeates, of Coatesville. Officer Koons, of Kennett Square, while fishing plug in the marble quarry hole near Chatham, Chester County, connected with a giant largemouth bass and landed it. His catch measured 23 inches in length and weighed 5 pounds, 11 ounces.

Hatchery Trout Go Wild Overnight

Experiments Prove Them Robust Foragers Instead of Hand-Fed Sissies

By Russel F. Lord, U.S. Bureau of Fisheries, Pittsford, Vermont
Courtesy - *American Game*

Part 1

SOME anglers believe that trout hatched and reared in a fish cultural establishment are sorry substitutes for the wild fish of open waters. Some of them claim that hatchery trout planted in streams are utterly thrown away, money wasted, unless misguided persons catch them before they slowly starve and perish when deprived of their usual rations.

In order to secure some definite information as to just how hatchery trout react when suddenly placed upon their own resources, two liberation experiments were carried out recently at the Pittsford, Vermont, hatchery. An excellent trout stream adjoining the station grounds was used for the purpose.

Keep Thorough Records

The first experiment was begun on August 18, 1932, by liberating one hundred yearling

sault was made on the liberated trout. This consisted of two people equipped with the necessary fishing equipment, notebook, ruler, scissors and bottles for the stomachs.

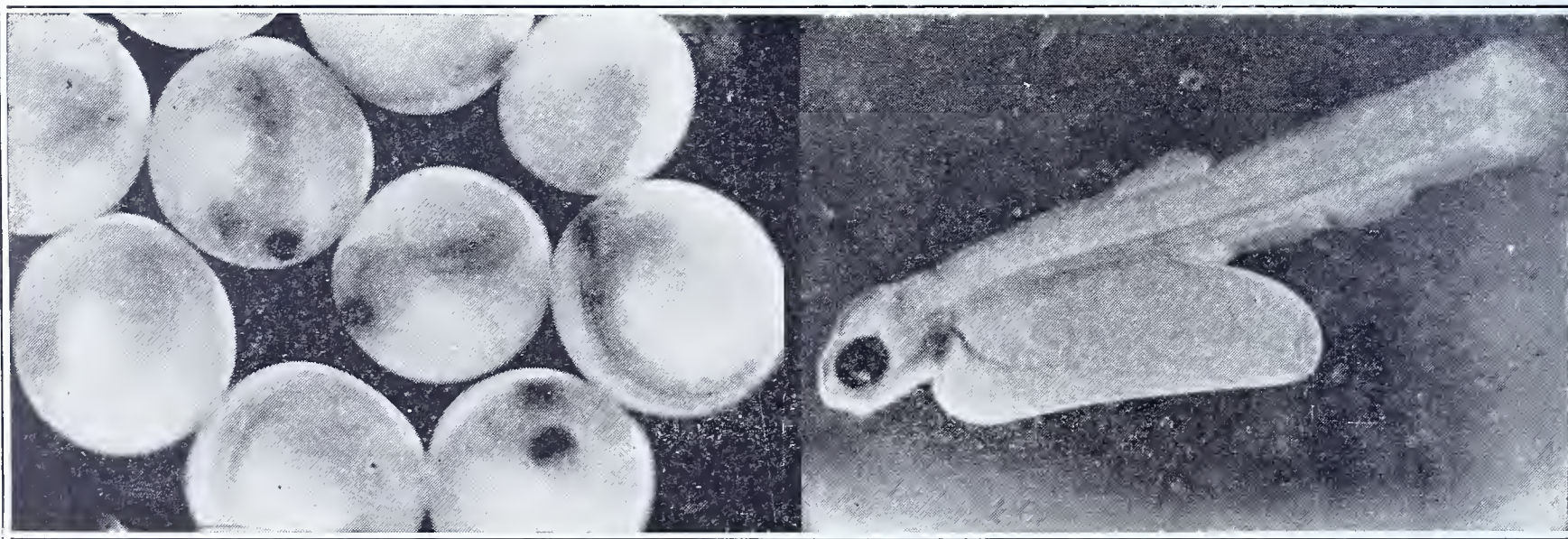
A cautious approach of the brook revealed several trout still hovering over the bottom in the middle of the first liberation pool. The question now was, "Will these hatchery-fed creatures strike the fly in swift water as gallant trout should or will they sulk and demand liver?"

The answer was quickly forthcoming! No sooner had the gray hackles touched the surface than a trout struck and fought a spirited battle quite commendable indeed for a pampered degenerate! On the first page of the note book inscribed: "Stomach No. 1—10.30 A. M., August 19, 1934—8 inch male. Colors good. Taken in mid-stream, liberation pool. Plenty of action."

same length. I do not mean fat and flabby—far from it. The meat was of excellent quality, and as no experiment is complete without a thorough investigation of all phases, let me state that when specimens No. 1 and 9 were shifted from the frying pan to dinner plates, I doubt very much if any complaint would have been ensuing by even the most conscientious objector to hatchery-reared trout.

Quicker Than Wild Trout

Were these fish actually competing for their food against the trout already established in the streams? Specimen number 9 answered the question in a rather spectacular manner. At the rise, the fishermen hooked and landed not only the fish in question, but also a wild rainbow of approximately the same size. This looked like real competition for rainbows have a way of get-



EYED EGGS OF RAINBOW TROUT AT PENNSYLVANIA HATCHERY ARE SHOWN AT LEFT; A DAY-OLD RAINBOW TROUT AT RIGHT

brook trout in three equal lots, each lot marked to distinguish it from the others or from wild fish, by removing certain fins. After one lot was planted the next lot was liberated approximately 110 yards further up the stream until all the fish were planted.

It was planned to give the trout approximately twenty-four hours freedom and then to start re-capturing a daily sample of ten fish with rod and reel until all, or as many as could be caught, were recovered. All pertinent data regarding time and place of capture, extent of travel, size, sex, color and behavior as sporting fish were to be recorded. Each stomach was to be placed in a numbered bottle of formaldehyde for future examination of the contents.

The next morning, August 19, the first as-

Better Than Wild Brothers

Thus it went. It is not my intention to go into the details of the taking of each fish. The first day's results however, do seem sufficiently interesting for a little further discussion. In about an hour and a half nine trout were caught. Every one of them struck in fast water and despite their lack of practice their aim was true and their courage high. Indeed, there was little about them to spell "hatchery" to a fisherman. Due to a diet designed to bring out the natural coloration, these yearling brook trout were about as pretty as any fish had a right to be. About the only real difference between these wild trout was that the condition factor was better; that is, they were in better flesh than the usual wild trout of the

ting there all at once when they sight something desirable. Even so, the brook trout was more firmly hooked. An examination of the stomach showed that it was full. Although the posterior end contained the remains of the last hatchery meal, the anterior was crammed with 13 freshly caught caddis worms, and one mayfly nymph. In fact, the data secured on the day following the liberation of the trout, showed conclusively that they were capable of foraging for themselves at once. Even though the last hatchery food given them had not yet been completely digested they were ready and willing to take advantage of anything their new environment had to offer in the way of sustenance.

The following table summarizes the stom-

ach contents of 78 brook trout which were recovered in the course of the experiment.

These data appear worthy of a little further discussion. First, if it is assumed that hatchery-reared fish are woefully ignorant of the proper procedure necessary to keep their heretofore well-filled stomachs functioning in a satisfactory manner, it might also be assumed that each day's freedom would increase their ability to master a new environment by means of a better acquaintance with the available food supply. Thus we might expect to find food organisms progressively more abundant in the

stomachs from day to day. Such however is not the case. The average number of insects in each fish holds fairly constant for the first three days, followed by an increase on the fourth day following freedom, which also marks the maximum average for any day's sample. There is nothing resembling a daily increase in the number of forms taken. It must be concluded therefore that the trout were on the alert from the very first, and that the varying amounts of natural food found in the stomachs depended on a great variety of factors, rather than on the one assumption that hatchery-reared

fish are handicapped by a wrong start in life that will forever limit their ability to be successful foragers.

Same Results With Rainbow

Before taking up some further aspects of the liberation experiment it might be well at this time to see how rainbow trout reacted under what amounted to identical conditions. The same number of rainbow yearlings, that is, 100 fish were set free the following summer and in the very same pools in which the brook trout were placed. The procedure of recapturing and recording the data were identical.

On September 3, 1933, the day following liberation, the first attempt was made to recover some of the rainbows. Many of them could be seen in the clear water of various pools, but they showed a typical rainbow moodishness about rising and only two fish were taken the first day. The next morning however, found the fish rising with zest and this was the only time during the entire experiment in which the desired quota of ten fish could be taken. The fish could often be seen feeding on caddis worms, taken off the bottom stones, but at such times nothing the fishermen had to offer appeared to interest them in the least.

(To be Continued)

TYPE AND AVERAGE NUMBER OF INSECTS TAKEN BY YEARLING BROOK TROUT LIBERATED AUG. 18, 1932.

Date Caught	No. Fish Taken	No. Aquatic Insects	No. Terrestrial Insects	Av. No. Both	Remarks Misc.
Aug. 19	8	82	4	10.8	hatchery food in 5
20	9	82	12	10.4	
21	7	41	23	9.1	
22	10	126	39	16.5	
23	9	105	14	13.2	
24	4	38	23	15.3	
25	10	103	53	15.6	
26	2	18	3	10.5	
27	1	3	0	3.0	
29	8	45	7	6.5	
30	7	83	23	15.1	
Sept. 5	3	18	4	7.3	
Totals	78	744	205	12.2	

Aquatic insects:	79%	Aquatic Insects:	Mayfly nymphs:	49%
Terrestrial:	21%		Caddis worms	34%
		(Chiefly midge larvae and simulum)	Misc.:	17%

Terrestrial: No separate percentages figured. Beetles and flies chiefly. A sprinkling of a wide variety of forms.

TABLE SHOWING TYPE AND AVERAGE NUMBER OF INSECTS TAKEN BY 49 YEARLING RAINBOW TROUT LIBERATED SEPT. 3, 1933.

Date Caught	No. Fish Taken	No. Aquatic Insects Eaten	No. Terrestrial Insects Eaten	Av. No. Both	Other Food and Remarks
Sept. 4	2	2	9	1.0	moss in 1 fish of Sept. 4 sample.
5	10	31	0	3.0	algae in 3 fish.
6	1	6	1	7.0
7	1	empty.
8	3	9	1	3.3	4-inch trout in 1 fish.
9	6	26	0	4.3	algae in 4; algae moss, hemlock needles in 1, feather in 1.
10	8	45	2	5.9	algae in 4.
11	1	5	0	5.0	algae in this fish.
13	1	12	1	13.0	algae in this fish.
14	3	349	7	118.6	1 fish crammed with transforming mayfly nymphs.
15	1	0	1	1.0
17	3	10	3	4.3	algae, moss, seeds, sticks half of bulk in 1 stomach.
20	4	18	7	6.3	algae, hemlock needles, in 1, and 1 fish with 2 blackberries.
24	3	23	3	8.7	algae, moss, 60 hemlock needles in 1; algae in 1.
25	2	7	4	5.5	1 fish full of chicken feathers: 1 with algae.
Totals	49	543	30	12.1	trace of moss or algae in about 1/2 the fish, but prominent in the 19 fish listed here.

Aquatic Insects:	95%	Aquatic Insects:	Mayfly nymphs:	65%
Terrestrial:	5%		Caddis worms:	16%
			Stonefly nymphs:	11%
			Diptera:	4%
			Misc.:	4%

Terrestrial: No separate percentages figured. Beetles, flies chiefly. (Note: Spiders and millipedes lumped with terrestrial food.)

RECORD LARGEMOUTH

Apparently the record Pennsylvania largemouth bass to be taken this year has been lured from the waters of Stillwater Lake in the Poconos. Report has it that Stanley Pastula of Shenandoah, a crippled war veteran, landed the bass, which measured 29 inches in length and weighed 8½ pounds. This ties the mark in the largemouth division made last year at Harvey's Lake, Luzerne County, with a bass of the same weight.

Other good catches of bass are still being reported. Edwin Mengle, 70 year old fishing veteran of Schuylkill Haven, caught five fine bass in Sweet Arrow Lake, Schuylkill County. The largest bass in the catch, 18 inches in length, weighed 3½ pounds; one, 17 inches, 3 pounds, 2, each 14 inches, 2 pounds each, and one 12 inches, 1½ pounds.

Sweet Arrow also yielded a splendid catch of bass to Albert Shuey of Schuylkill Haven. The largest bass in this catch was 21 inches in length and weighed 4½ pounds, another 18 inches weighed 3½ pounds, while a 14-inch weighed 2 pounds.

CLINTON CATCHES

One of the finest brook trout to be entered in the fishing contest conducted this year by the Bartholomew Sporting Goods Store of Lock Haven, was caught by Robert Krape, 92, of Salona, the oldest fisherman in Clinton County. It measured 15½ inches in length and weighed 22 ounces, a beauty of a brookie.

While fishing minnow on Fishing Creek during the trout season, Paul Fulger, of Mill Hall, connected with a brown trout 22½ inches in length, weighing 3 pounds, 15¼ ounces, and landed it.

A brownie caught in the same stream by Irvin Ruhl, of Tylersville, measured 21¼ inches and weighed 4¼ pounds.

White Clay Creek Once More A Trout Stream

AS PENN'S early settlers began to expand west of the Delaware they found that the land, once cleared, was wonderfully fertile and productive. That they used rare good judgment in founding their homes in what is now the southeastern counties of Pennsylvania is proved by the fact that the area is still rated as one of the outstanding agricultural sections of the country. In many cases the same families are still farming the same land and living in the same substantial dwelling of their ancestors.

Here the pioneer found stone and timber, in what appeared to be unlimited quantities, for those typical Quaker Colonial houses with their stone barns. Meadows were well watered and the flow of the streams heavy enough to turn their mills. Little did they dream that the day would come, when, by cutting the timber, plowing the fields, and building their dams they would warm the streams, fill them with silt and check their flow to such an extent that the brook trout so abundant in the early days, would be forced clear back to the spring heads and in many cases to extermination. The poor benighted white man has always been so short-sighted that he ruthlessly spoils ten thousand dollars worth of natural wealth and beauty to get a small portion of that sum in hard inedible gold.

Villages and towns followed the farmer and the streams soon were forced to carry an increasingly larger amount of pollution and in most places became the handy refuse heap for anything that was of no further use.

White Clay Creek in Chester County was a stream typical of the section. It had suffered from practically all the ravages of a growing community; it was silted and sluggish in the meadows and the beautiful tumbling water of Laurel Woods was fishless. From the highway bridge in Avondale one looked down on a pile of discarded automobiles, tires and other junk. A gas plant had killed practically all of the fish and the brook trout never came down from the headwaters because of warm water and lack of cover.

When the Southern Chester County Chapter of the Izaak Walton League, with Spring Creek as an inspiration and a healthy desire for good fishing as its incentive, wanted to have an improved trout stream of its own, White Clay looked like the best bet. The old mill dams were gone, the gas plant was defunct and dismantled, thanks to progress, and the stream was again clean though not much of a fisherman's paradise. The cold water spring heads still provided some natural brook trout fishing, still had a good flow and could be depended on for spawning areas.

After a survey by the Fish Commission in September, 1934, the stream was approved for brown trout and the chapter in blissful ignorance planned the improvement



of a meadow in the borough of Avondale with the permission of William Watson, the owner. The plan was submitted to Commissioner Deibler and received his hearty endorsement.

Members working on Saturday afternoons and Sundays started to build deflectors with stone collected here and there, from fields and stone ricks. They soon realized the magnitude of the job. Engineer O'Hara of the Fish Commission came down to look over the situation, found the work had been started at the wrong end of the meadow and recommended twice as many improvements as had been planned. By this time the water was getting cold and it seemed more imperative to raise some money to buy materials than to work in the meadow. This occupied most of the winter and in January, 1935, when the trout began to arrive from the hatchery, there was very little work finished.

About this time it was found that L.W.D. labor could be used for the purpose and plans were laid for the Chapter to buy the materials and have the work done in this way. All looked rosy, the plans were approved but when it came time for the work there was no funds available in the L.W.D. There was nothing left to do but go to work and this, the Chapter did with a will.

All through the early months of 1935 the members worked in the stream every Sunday the weather permitted, regardless of the low temperature of the water which could only be called icy.

The stone for the deflectors was bought from a local quarry, hauled to the edge of the field in borrowed trucks and sledged across the soft ground to the site of the deflectors with stone boats and mules. As each deflector was built and the new current formed, the larger rocks were dropped in the sluice for cover. At the point where





the new current receded, another deflector was built and the process continued the entire length of the meadow. Surprising results were noted after the first freshet; the bottom was scoured clean and the silt and sand left in a bar in the dead water. On warm afternoons the stocked trout could be seen rising continually from the points of the deflectors. Often they would move in within ten minutes after completion.

In the meadow was the usual swimmin' hole and the boys had built dam after dam, only to have it washed out with each heavy rain. Mr. O'Hara suggested a Deibler Fish Dam to replace the remnant of their latest efforts. This was constructed of logs and poles cut in the woods and skidded to the site. Flooring consisted of old form lumber supplied by a friendly contractor, and supplemented by some lumber from the local yard.

Block and tackle were necessary to remove the old automobile bodies, bed springs and larger pieces of junk. Signs procured from the Fish Commission were put up in

an effort to stop this needless and disfiguring form of stream defilement.

Evergreens, for the most part donated by member nurserymen, were planted along with willow slips to furnish shade over the deflectors.

Probably the greatest success of the entire project was the result obtained in preaching good sportsmanship among the fishermen. There is no doubt that there was considerably more fly fishing than bait fishing on the stream during the season and barbless hooks were very much in evidence.

Signs requesting fishermen not to kill fish under eight inches in length and not more than five per day were very well respected and the doctrine that full creels mean poor fishing gained many converts.

In spite of the fact that the members of the Southern Chester County Chapter of the League have spent many arduous hours both in raising money and doing the actual improvement work, they are so pleased with the results that a continuous program of stream improvement is contemplated. This will be carried forward as fast as time and money will permit.

purpose of removing the small fish to other bodies of water. Catfish and bluegill sunfish are being raised.

The club, acting on a request from County Game Protectors, recommended a number of persons for appointment as Special Game Investigators to assist the County Game Protectors in making reports on game and food conditions in a number of townships. A number of signs were ordered printed for posting on lands open to hunters asking them to respect the property of the farmer, to exercise caution in the handling of firearms, and to obey the law.

Rifle awards were made to members of the rifle team captained by J. Richard Stover for winning six out of a series of eight matches held during the summer on various ranges and at the game of "Gofort." The prizes consisted of medals and cart-ridges, and were awarded to the following members: Charles Crawford, Melvin Blettner, Leo T. Martz, William R. Spangler and J. R. Stover. The high individual prize was awarded to Myrl R. Crawford, the club's president, for scoring the highest

number of points in the series. B. C. Harget, captain of the opposing team was the runner-up for high individual prize. The team scores follow:

B. C. Harget, Capt.	559
Louis Mummert	466
Paul Crawford	401
Melvin Wehler	375
Robert Stover	364

2165

J. R. Stover, Capt.	458
Chas. Crawford	521
Leo T. Martz	517
Melvin Blettner	505
W. R. Spangler	481

2482

High individual—Myrl R. Crawford shooting on team captained by J. R. Stover. Score—568 x 800.

"Vegetarian" Trout?

Are trout going vegetarian? That question is brought to mind by the following interesting communication from S. K. Breese of Shippensburg. Writes Angler Breese:

"One day last July, while fly fishing for rainbows in Cleversburg dam, and trying several flies without result, I finally landed one and decided to hold a post mortem to determine on what the fish were feeding. Never having before met up with a vegetarian trout, I was considerably surprised to find that its stomach contained four watermelon seeds. The seeds had evidently been thrown into the dam by picnickers. Needless to say, I had no flies to match."

FISH DEFINED

Dr. Jordan's definition of a fish is: "A fish is a back-boned animal which lives in the water and cannot ever live very long anywhere else. Its ancestors have always dwelt in water, and most likely its descendants will forever follow their example. So, as the water is a region very different from the fields or the woods, a fish in form and structure must be quite unlike all the beasts and birds that walk or creep or fly above ground, breathing air and being fitted to live in it. There are a great many kinds of animals called fishes, but in this all of them agree: All have sort of a back-bone, all of them breathe their life long by means of gills, and none have fingers or toes with which to creep about on land.

"Fish are found living under all sorts of conditions; some are adapted for life in the frigid zone, where the weather is extremely cold; others in the temperate zone, where they must be capable of withstanding the cold water during the winter and warmer water during the summer. Others are of the torrid zone, or very warm climate. Without regard to climate, some fish are adapted for a life in the salt water of the ocean; others live in the fresh water of our streams, lakes, and rivers. Some live part of the time in salt water and part of the time in fresh water, usually migrating at the approach of spawning season from fresh to salt water, or vice versa; still others make their home in brackish water; that is, where the salt water mingles with the fresh water at the mouth of the stream."

YORK-ADAMS SPORTSMEN RAISE SUNFISH, CATFISH

Members of the York and Adams County Game and Fish Association, Hanover, Pa., at a meeting held on October 18th, acted favorably on a proposal to reduce the annual membership fee from \$3.00 to \$1.50, effective at once. It was announced that a drive for members will get under way and that a greatly increased membership will be a certainty. The club at the present time has a membership of 127. Myrl R. Crawford, president, was in charge of the meeting which was largely attended.

The Game Committee reported that 100 pheasants are to be fed and cared for during the winter for next year's release, and reported the liberation of 90 pheasants raised by members of the association. The Fish Committee reported stocking two lakes with a large number (70 cans) of good sized catfish and bluegill sunfish, also that a shipment of fish is being expected for stocking dams in the Big Conewago. The club plans to draw the water from its fish rearing pond Sunday, October 27th, for the

The Worm That Turns

By Fred E. Stone

THE beauty of a tranquil lake with the orange red sun finishing its day behind deep blue hills in the far west was only part of the picture I had painted of Lake Wallenpaupack, Pennsylvania's greatest fishing spot.

To complete this imaginative picture I had inserted deep ripply circles among the lily pads and grass patches which rimmed the entire shore line of this fisherman's dream. These circles and dimples were the great bass and pike I had been told to expect. And to catch these mighty denizens I had gone well equipped with bugs to cast here and there among their grassy haunts, and I had brought big green and red and white plugs to cast over shallow bars.

If you have ever had the pleasure to fish this lake or even seen this vast piece of water, you can well sympathize with me, a fisherman with too great an imagination, and for the reader who has not yet set eyes on the Mecca of Pennsylvania anglerdom, I shall try and describe just what scenery does meet the eyes.

The first sight to greet the newcomer is a great expanse of bare water, which lies in a valley with ridges surrounding practically its entire shore line. Then, on closer observation, one is struck with the lack of anything grassy, or otherwise, either along the shore line or anywhere on the lake. This, I was later told, was due to the rise and fall of the water level caused by the operation of a large power plant located at the lower end of the lake.

I have suffered before with fishing illusions but was never so badly disappointed as then. As for catching fish from as barren a lake as that appeared at first glance, well, I had just about given it up as a wild fish chase.

The first operation after pitching camp was to take stock of tackle, which consisted of two bass bug outfits, ten or more plain and fancy colored bass plugs, the equipment necessary to throw them about and not much desire to do the throwing.

After thinking the situation over, we decided to secure as much information on just how it was done as any local native would furnish gratis. What we found out was that the lake averaged about 35 feet in depth, and that the fish fed on the bottom the entire year around. Out went the fly rods. We were also informed that trolling was the best method to take the larger fish, so it was trolling we did, and with the greatest of success. We caught wall-eyed pike, six pounds in one piece, smallmouth bass at three pounds, and wonder of wonders, rock bass that weighed, being conservative of course, a pound and a half and all because of the worm that turns as worms, or rather night crawlers do, when impaled on a hook behind a June bug spinner. Now, the story of this trip was recorded before in the ANGLER but the method was not and since the same method has proved so successful on this lake, the Delaware and Susquehanna Rivers and numerous other large bodies of water in addition to accounting for the second prize winning wall-eye last year in a large fish contest, I think it only justice that I should try to pass on to other fishermen the methods most commonly used in trolling and add what personal observations I can.

The tackle best suited for this means of fishing is a short, rather stiff rod of not more than six feet in length, a hard braided silk line of 24 pounds test of which 100 yards is necessary. To this is added short bronze or copper leaders with swivel to keep the line from twisting and a snap to ensure easy changing of lures when necessary. The weights most used are split buck shot strung along the line, six inches apart, some distance above the spinner.

The June Bug Spinner itself is the modern revision of the long used salmon spoon. They both serve the same purpose, that of attraction. The June Bug is a red and white spinner set away from the wire leader to which the hooks are attached. This wire acts as its axis. Two hooks are used, the

upper one small while the lower one is much larger, the idea being to insure a means of baiting for night crawlers or lamprey eels whereby short strikes are practically nil.

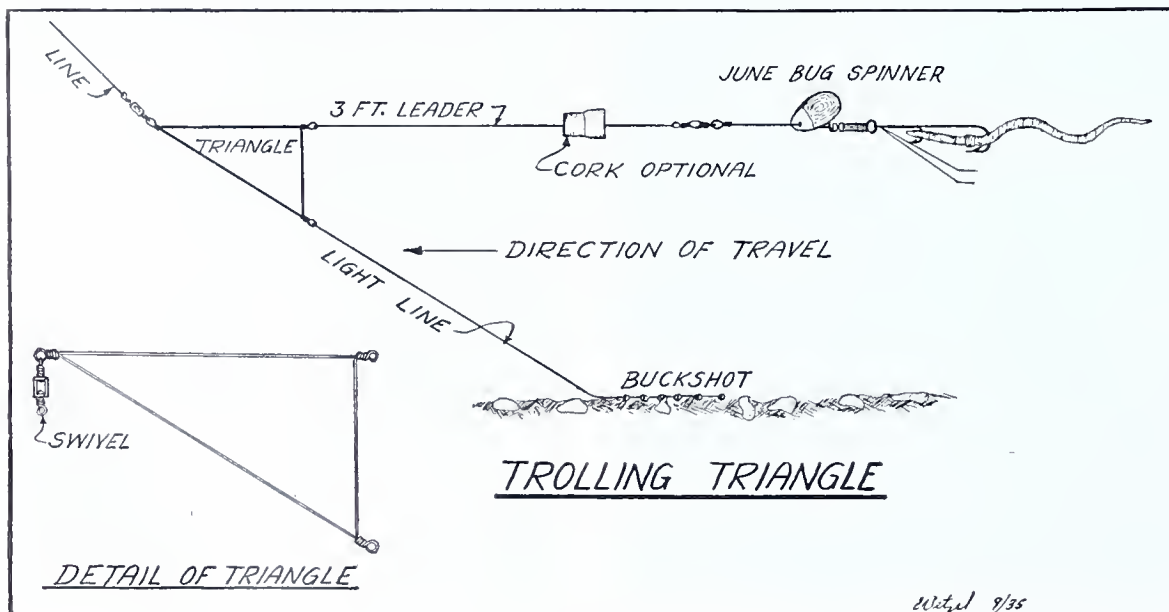
Another good trolling lure is the Susquehanna Spinner, a large brass or copper spoon as big as the common tea spoon to which is attached a double twisted gut leader with two large hooks. It is baited the same way. This happens to be my own particular choice in trolling lures.

Still another trolling lure which has proved its worth especially in roily water is the tandem or double spinner, one above the other. The hooks are the same as those with the Susquehanna Spinner. This spinner should be of rather large size, preferably size 5 or 6. These three lures should be in every troller's tackle box as they are all considered great baits and a change of lures is often advisable.

There are several methods of rigging the outfit for trolling, all having their advantages. For a badly littered bottom, whether in the form of rocks, stumps or grass, the most advantageous is the trolling triangle, a stiff wire triangle 5 or 6 inches on a side, to the one corner of which is attached the trolling line. To another corner of this outfit is tied a light test line of about 20 inches, to the end of which the weight is fastened; at the other corner 36 inches of line cut from the reel is tied. To the end of this line the lure is tied. The advantage of this rig lies in its ability to save tackle dollars, as the lure must travel not more than 6 inches or so from the bottom to be really effective. This allows deep trolling without snagging the lure, the weights on the end of the short line will at times snag but can easily be torn loose and a new line retied at very small cost.

The simplest method of rigging is to attach the lure to the end of the line and string buck shot of the proper weight, every six inches up the line, to insure fishing right on the bottom. This method is the simpler and better of the two as then the lure and bait is as close to the bottom as it is possible to get. It should be remembered when trolling that to catch fish you must be near the bottom at all times, and to be snagged numerous is a blessing rather than a curse (which most fishermen do when snagged).

The proper speed at which to move the boat varies with the speed of the current but should be only fast enough to keep the lure barely off bottom. Coil loose line from the reel on the rear seat of the boat and drop the lure over the end, enough weight should be used so that the bait sinks rapidly or the smaller fish will steal the bait before it reaches bottom. When the lure reaches bottom the boat should be moving, while line is running out, and should move just fast enough so that the lure does not bump across the bottom. As little weight as possible should be used so that rowing very



slowly is possible. The slower the lure is moved the better. To move slow enough so that the spinner is just moving is the proper speed, while a harder pull on the oars at times, to make the spinner revolve faster, is often a good trick.

The best spots to troll in are the deeper holes and these can be gone over back and forth repeatedly with good results. I have fished over the same spot, two hundred yards in one direction, for an entire day and took all the fish I wanted. Apparently they would strike with the same regularity in the evening as at dawn.

When the strike comes it will not go unnoticed because a nine-inch fish can strike a moving lure hard enough to make an angler forget his oars and jump headfirst to save his rod. It is very necessary to have the rod in a handy position at all times for a fish of two or three pounds will strike with ferocity enough to take a rod overboard, unless it is handy enough to grab quickly or well braced. When the lure is struck, the angler should strike back as quickly as possible and here is where two in a boat works better than one, the one to handle the oars while the other tends the rod, and alternate so that neither gets tired of rowing.

This, I believe, covers some of the major points in trolling possible to pass on in writing, but many little tricks of baiting and rigging will be found in a short while by the wide-awake angler who turns to trolling to feel the thrill as a large bass or wall-eye strikes the spinner. When the fishing day is done for the troller, whether successful or not, he will feel he had a full day of fishing. The man who trolls is never still as the water just around the bend looks the best.

YE ANGLER'S DICTIONARY

(Author Unknown)

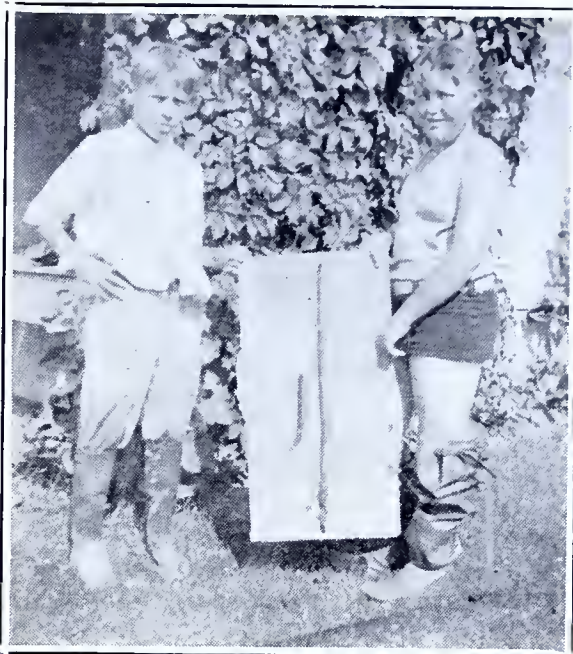
Fishing:—A disease for which there is no cure; "catching" but not contagious. It formerly infected only savages, small boys, and village ne'er-do-wells; but it now attacks presidents, judges, ministers, doctors, and ten million others. In extreme cases, the fever can be reduced by placing the patient in the hot sun for several hours.

The Original Purpose of Fishing:—Of inflicting pain upon the worm, the minnow, the frog, and the fish, has been reversed. It is now an endurance test of the fisherman—trials by sunburn and moonshine—mosquitoes—poison ivy—lack-of-sleep—camp-cooking and excessive confidence in "wild-deuces."

Fishing Camp:—A place to wear out old clothes; play "old maid"; eat half cooked food; fight insects, and act red-blooded. Live-liest hours are from midnight to daylight. Happy camping parties have been spoiled by erratic individuals who insisted on "going fishing." A favorite camp motto is "Fish and Visitors Smell After Two Days."

Fishing Liar:—A term used by every angler to describe all OTHER brother anglers—a "piscatorial prevaricator." A vivid imagination is the outstanding characteristic of the real angler.

Bait:—A secret word of the fishing fraternity for an illegal but highly exhilarating beverage, which is carried "on the hip." It will remove varnish, and counteract heat,



BILLY STOUT AND JUNIOR BUTZ, OF STROUDSBURG, ARE ARDENT SNAKE HUNTERS. THEY EXHIBIT A 28½ INCH WATER-SNAKE AND 8½ INCH TROUT FOUND IN IT.

cold, snakebite, bad luck, "that tired feeling," or "what-have-you."

Guide:—A true conservationist in disguise. His duty is to take you fishing "where they ain't," and to encourage you to come again "next week," when the water is lower, or higher, or clearer or wetter.

Worms:—Greatly scored in writings and in public, but used widely and secretly by most trout fishermen. A few, hardened anglers, unmindful of public opinion, brazenly admit their use. Outstanding among them was a former President of the United States.

Plugs:—Imitations of bananas, dill pickles, darning needles, bugs, birds, bees, and animals. Now manufactured in many alleged "lifelike" shapes, and primarily designed to fool the fisherman and lure a dollar bill from his pocket. However, authentic records exist of many feeble-minded fish taken on these lures.

Rod:—A sporty name for a "fish-pole" costing over \$5.00. Rods are sold by weight—the lighter the rod, the heavier the price. Like knights of old who splintered their lances in tournaments, all fishermen strive to have a fish break their rod—an event of great distinction to boast about.

Reel:—A coffee-mill invented by Satan, and designed to come loose, get out of order, or snarl up at critical times, thereby inducing lurid and profuse profanity.

Fish-Line:—An expensive piece of string used on a reel. It snarls, gets snagged, and is guaranteed to break at the right time, thereby creating the necessary alibi for the "whopper" that always gets away.

"Whopper":—A term used to describe all fish which get away. Associated words are "whale," "big'un," "granpa," "sockdolager," "long-as-your-arm."

Creel:—The distinctive item of a trout-fisherman's uniform. A fragile wicker basket in which to hide a worm can, carry a fly book, lunch, slicker, etc. Occasionally used to hold small trout.

Boots or Waders:—An effective means of carrying a large quantity of water from the stream to a convenient log. Guaranteed to keep the feet hot in summer and freezing in cold weather. "Waders" hold more water than "Boots," and are therefore preferred in putting out camp fires.

Flies:—A feather imitation of nothing-ever-before-seen, with very fanciful names, and the favorite food of house moths. Flies are principally used to decorate fisherman's hats, although some are kept in a fly book. Made in two kinds, "Anti-Volstead" and "Prohibitionist." Wet flies gaining in popularity, are now favorites along the Canadian border, and in Wisconsin, and some other states.

Boat:—A leaky, ill-smelling tub, provided with two tomato cans for bailing, and a pair of mismated oars with one oarlock. Usually rents for \$2.00 per day. Antique boats command a great premium.

Izaak Walton:—Patron Saint of All Anglers, and a direct descendant of Ananias, Prince of Liars. Ikey was a patient, loquacious English Jew who acted as "guide." He instructed novices in the art of "ye angle," and founded a League of Liars and Good Sportsmen.

WATERDOG DRIVE

Ray L. Straughn, president of the Freesport Sportsmen's Club, reports a successful drive covering two nights against fish predators in Buffalo Creek. Members of the club with a special permit and under the direction of Fish Warden J. H. Simmons, competed in the drive. A total of 73 waterdogs, two watersnakes and a turtle were killed.

TROUT SEASON SURVEY BY ROYDEN TAYLOR

The following interesting communication from Royden J. Taylor of Indiana, Pa., is a clean-cut observation on the 1934 trout season. Generally, it concerns central Pennsylvania trout waters, and holds much of interest to the average trout fishermen. Mr. Taylor's letter follows:

"Since writing you I made a trip to Six Mile Creek at Philipsburg—before the rain. Water was low—not too low for the fisherman. Saw a lot of nice fish feeding in the fast water but when you overcame the brush handicap and got near enough to cast the fish could see you. So I think they are pretty safe from the meat fishermen. Stream was full of trout with lots of young ones that must have been spawned there. I damaged the stream to the extent of three trout, which I guess it can stand. There should be some fine fishing for an expert in normal water.

"Last Wednesday made a one day trip to Young Womans Creek. It had rained hard there the night before and the water was up over a foot and cloudy. All the holes, as I know them, were flooded out with the high water. This was not much of a handicap in getting fish as they would take either wet or dry fly. It would have been possible to take the limit twice over. Two of us brought back twelve trout—all over nine inches and all but one from the left branch. Only fished an hour on the

right branch. The improvements are fine—the fish have plenty of water and shelter and the drought bugaboo is gone on that stream. This regulation on the right branch is one fine thing to conserve the fishing, and it would not hurt much to put it in effect on the left branch. In a year or two this stream should be as good as Spring Creek or Penn's Creek. Saw only three other fishermen on the stream and in three years fishing up there have never met more than six other fishermen. If there is heavy fishing it must be early in the season. The trout there take a dry fly more readily than on any stream I fish.

"While fishing Little Yellow Creek a few days ago I saw a most encouraging thing—several bass nests. These are the first nests I have seen on this stream in over ten years. These bass must have come up from the main Yellow Creek to spawn and my guess is that they are the ones we stocked several years ago. Now if they will only be reasonable in their catches, Yellow Creek will again be a first class bass stream. Taking it altogether I think we have a pretty decent lot of outdoors men in this district. Complaints on reduced limits are not very vigorous and those I know best promise a ready compliance.

"Legal limits on both fish and game have never meant anything to me because they are so far above my own desires that I never even think of a limit. My father and I fished these waters for trout and bass in the years when there was no enforcement and it was possible to take any number of fish. Thinking back over our catches I realize now that we were conservationists all unconsciously. Rarely did we take as many as ten trout or six bass. I remember, as a kid, my uncle coming in from the trout streams that then were tributary to upper Blacklick Creek—streams full of trout—and his creel was never even half full. Why, I don't know. As Judge McCann says, perhaps we were born that way. My earliest recollection of conservation was the reproachful term of "pot hunter" applied to an old fellow who lived near us. It was said that he would crawl a mile on his belly to stick the muzzle of his shot gun into a covey of quail. There was a famous bass hole on Yellow Creek and this old man would turn out early with a bucket of minnows and a bundle of cane poles. If you followed him you would find at least a dozen poles set over this hole and if you had planned to fish it, it was just too bad. The whole town considered him a mighty poor sport, and said so. This had a lot of influence on my early fishing and hunting.

"I hear no criticism whatever of your administration but you say you get letters complaining about limits and Johnny Mock tells me there is considerable. Guess you will just have to thicken up your hide and take it in the knowledge that you are doing more to make good fishing for us in Pennsylvania than has ever been done before. It makes me mad when these fish hogs howl about conserving our supply. If they were half-way decent or thought about the matter they would realize that the day is past in this state when a fisherman can go out and get all the fish he wants anywhere. It was so once, and I fished a lot in those times. But not any more. If these objec-

tors would stop to think they would know we are lucky to have *any* fishing. I think you will find that there are a very large number of the fishermen back of you. The trouble is they are never given to expressing an opinion and you hear only from the objectors. If the men who believe in what you are doing will light into these hogs and shame them over their greed it may help.

"My niece and I went to Spring Creek on a second Monday and this time I came out ahead, one fish. She broke her leader again, she says. We picked Monday because there are fewer fishermen and the fish have had a rest for a day. Next time I am going to make her fish the main stream. She can take trout there if she works a little. I hooked my tackle buster again. He did not smash any tackle but stuck his head under the water falling over the dam and spun until he got off. So he is there for me again, or some other fisherman.

"We go to Spring Creek for study rather than fish. I can learn more in one day down there than in a week's fishing on the open streams. From morning till night there is something new and I try to figure out what the trout are taking, and why. When I get the right answer I get a big trout. I notice so many people think all they have to do is go down there and slap in any fly. Once in a while they will catch one, but not often. And the trout will take a fly in one part of the stream when they will not look at it in another. Last time I watched an angler casting in that pool just above the footbridge. It was after six o'clock and he cast for an hour in one spot without a rise. When he quit I moved in with a No. 20 black fly fished wet and had a 14" trout in five minutes. I gave him the fly and left him casting. Last year a fellow from Millheim showed me that these trout could be taken at this time of day on this tiny wet fly. So Spring Creek has added that much pleasure to my fishing. My observation on the various streams leads me to believe it has been one grand season for the fish, if not for the fisherman. Lots of water everywhere."

VARIED STOCKING IN SEPTEMBER

The autumn stocking program of the Fish Commission touched a peak during September, when 759,299 fish of the various species were stocked in Pennsylvania waters. Included in the distribution were 232,050 sunfish, 1 to 5 inches in length; 90,547 bullhead catfish, 2 to 8 inches; 7,200 minnows, 2-inch average; 259,600 frogs, embryo stage; 13,025 bass, 4-inch average; 13,040 brown trout, 8 to 9 inches; 37,140 brook trout, 6 to 8 inches; 570 rainbow trout, 9-inch average; 105,295 yellow perch, 3 to 5 inches; and 832 suckers, 9-inch average.

Following were the waters stocked in the various counties:

Adams—rainbow trout, Birch Run.

Armstrong—brook trout, Corn Planter Run.

Bedford—brown trout, Buffalo Creek.

Berks—catfish, French Creek, Monocacy Creek; sunfish, Monocacy Creek, French Creek.

Bradford—brook trout, Schrader Creek.

Bucks—tadpoles, Neshaminy Creek; cat-

fish, Silver Lake, Maple Beach Lake, Neshaminy Creek; sunfish, Silver Lake, Maple Beach Lake.

Butler—black bass, Buffalo Creek, Wolf Creek, Glade Run.

Cambria—catfish, McCoy Shaft Dam, Clearfield Creek, North Branch of Little Conemaugh River, Pa. Coal & Coke Co. Dam, Chest Creek, Slatelick Creek, Walters Dam on Beaver Dam Run, Beaver Dam Run; sunfish, St. Francis Lake, McCoy Shaft Dam, Clearfield Creek, North Branch Little Conemaugh River, Pa. Coal & Coke Co. Dam, Davis Run, Chest Creek, Slatelick Creek, Walters Dam on Beaver Dam Run, Beaver Dam Run.

Cameron—catfish, Devling Pond, Mix Run Pond, Bowers Pond; frogs, Devling Pond, Mix Run Pond, Bowers Pond; sunfish, Devling Pond, Mix Run Pond, Bowers Pond.

Centre—brook trout, White Deer Creek; black bass, Bald Eagle Creek, Moshannon Lake; sunfish, Moshannon Lake, Cold Stream on Philipsburg Dam; frogs, Moshannon Lake, Cold Stream on Philipsburg Dam; catfish, Moshannon Lake, Cold Stream on Philipsburg Dam.

Chester—Waln Run, Rock Run, Valley Creek; sunfish, East Branch Big Elk Creek, Bakers Quarry Hole, Big Elk Creek, Barnardis Quarry Hole; catfish, East Branch Big Elk Creek, Big Elk Creek, Barnardis Quarry Hole, Bakers Quarry Hole.

Clarion—brook trout, Little Piny Creek, Little Toby Creek, Mill Creek, Deer Creek, Toms Creek; sunfish, Allegheny River, Sligo Dam, Clarion River, Heffner Dam on Paint Creek, Snakehead Pond, Red Bank Creek; frogs, Allegheny River, Red Bank Creek, Sligo Dam, Clarion River, Heffner Dam on Paint Creek, Snakehead Pond; catfish, Allegheny River, Red Bank Creek, Snakehead Pond, Heffner Dam on Paint Creek, Clarion River, Sligo Dam.

Clearfield—sunfish, Kneedlers Pond, Chest Creek, Berwindale Lake, Beaver Run, Little Clearfield Creek, Sabula Dam, Tannery Dam, Parker Dam; frogs, Sabula Dam, Tannery Dam, Parker Dam, Chest Creek, Kneedler Pond, Berwindale Lake, Beaver Run, Pine Grove Inn Pond, Little Clearfield Creek; catfish, Sabula Dam, Tannery Dam, Parker Dam, Little Clearfield Creek, Pine Grove Inn Pond, Beaver Run, Berwindale Lake, Chest Creek, Kneedlers Pond.

Clinton—sunfish, Bald Eagle Creek, Axe Factory Dam on Fishing Creek, Bald Eagle Canal, Pine Creek; frogs, Axe Factory Dam on Fishing Creek, Bald Eagle Canal, Bald Eagle Creek, Pine Creek; brown trout, Lick Run; catfish, Bald Eagle Canal, Axe Factory Dam on Fishing Creek, Bald Eagle Creek, Pine Creek.

Crawford—black bass, Conneaut Lake, Pymatuning Reservoir, Conneaut Creek, Muddy Creek, French Creek; sunfish, Canadohta Lake, Clear Lake, French Creek, Conneaut Creek, Conneaut Lake, Drakes Mill Dam, Sugar Lake, Muddy Creek, Mill Dam on Oil Creek, Oil Creek, Pymatuning Reservoir; frogs, Cussewago Creek, Drakes Mill Pond on Conneaut Creek, Sugar Lake, French Creek, Conneaut Creek, Mill Dam on Oil Creek, Canadohta Lake, Clear Lake, Muddy Creek; catfish, Pymatuning Reservoir, Conneaut Lake, Conneaut Creek, French Creek, Oil Creek, Mill Dam on Oil Creek, Muddy Creek, Clear Lake, Canadohta

Lake, Cussewago Creek, Drake Mill Dam, Sugar Lake; minnows, Pymatuning Dam.

Cumberland—brook trout, Big Spring, Trindle Spring, Mountain Creek; brown trout, Yellow Breeches Creek, Mountain Creek.

Dauphin—catfish, Susquehanna River; tadpoles, Susquehanna River; sunfish, Susquehanna River; brown trout, Rattling Creek, West Branch Rattling Creek.

Delaware—sunfish, Chester Creek, Darby Creek, Ridley Creek, Crumlynnne Dam, Kaolin Quarry Hole; catfish, Chester Creek, Darby Creek, Ridley Creek, Crumlynnne Dam, Kaolin Quarry Hole.

Elk—sunfish, Black Swamp Pond, Becks Pond, Ridgway Water Works Reservoir; frogs, Black Swamp Pond, Bucks Pond, Ridgway Water Works Reservoir; catfish, Black Swamp Pond, Becks Pond, Ridgway Water Works Reservoir.

Erie—sunfish, Lake LeBoeuf, French Creek, West Branch French Creek, Edinboro Lake, Lake Pleasant; frogs, West Branch French Creek, Lake Pleasant, Edinboro Lake, French Creek, Lake LeBoeuf; catfish, Edinboro Lake, Lake Pleasant, West Branch French Creek, French Creek, Lake LeBoeuf.

Fayette—brook trout, Mountain Creek, Mill Run, Buck Run, Morgan Run.

Forest—brook trout, Salmon Creek, Little Salmon Creek.

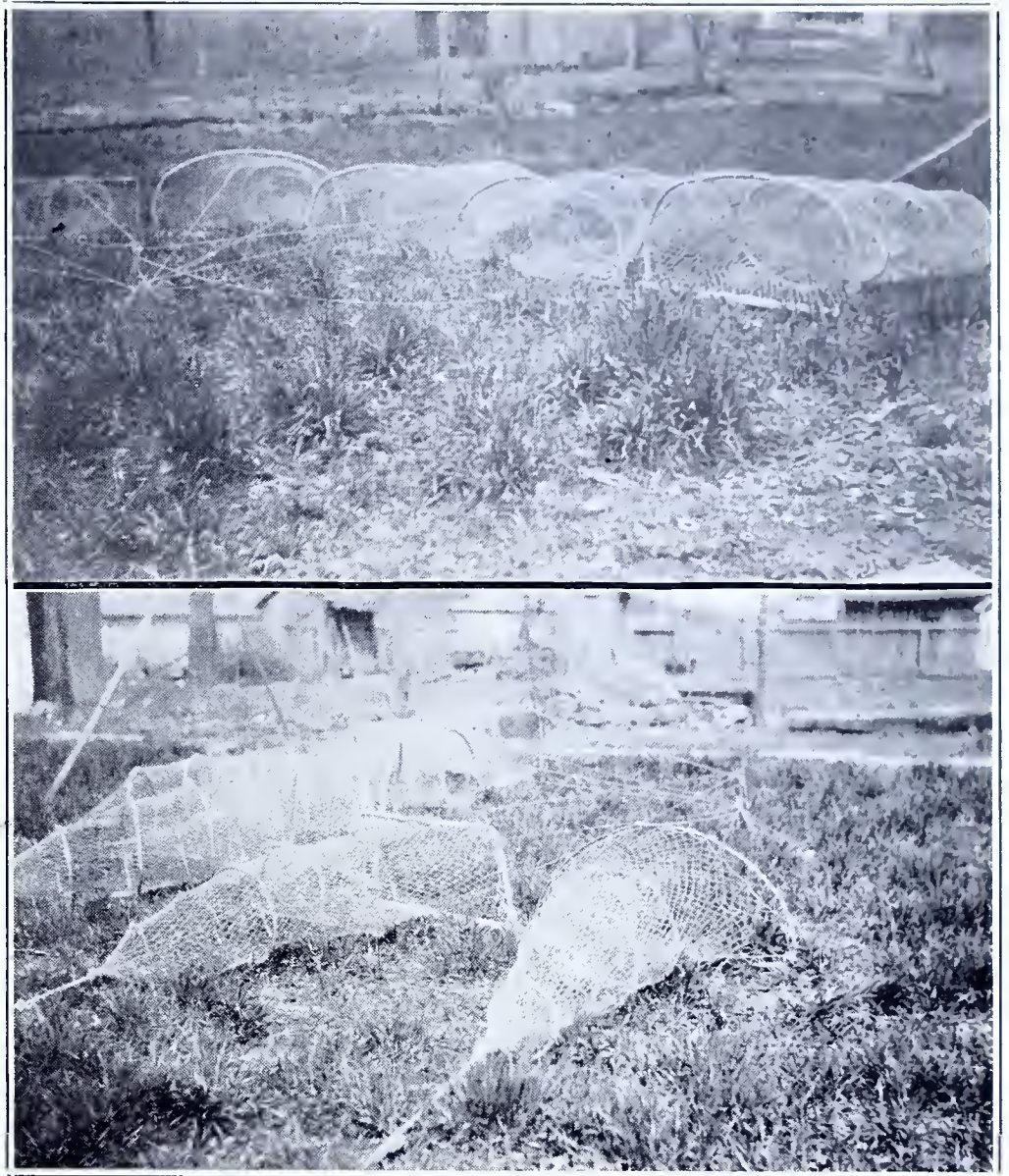
Franklin—black bass, Conococheague Creek; sunfish, West Branch Conococheague Creek, East Branch of Little Antietam Creek, Goods Dam on East Branch Little Antietam Creek, Muddy Run, Conococheague Creek, Conodoguinet Creek, Roxbury Dam; catfish, West Branch Conococheague Creek, East Branch Little Antietam Creek, Goods Dam on East Branch of Little Antietam Creek, Muddy Run, Conococheague Creek, Conodoguinet Creek, Roxbury Dam.

Huntingdon—brook trout, Black Log Creek.

Jefferson—sunfish, Strouse Dam, Sandy Lick Creek, Falls Creek Boro Storage Dam, Soldier Dam, Reeds Dam, Little Sandy Creek, Red Bank Creek, Brookville Water Supply Dam; frogs, Little Sandy Creek, Red Bank Creek, Crouse Dam, Sandy Lick Creek, Falls Creek Boro Storage Dam, Soldier Dam, Reeds Dam, Brookville Water Supply Dam; catfish, Strouse Dam, Sandy Lick Creek, Falls Creek Boro Storage Dam, Soldiers Dam, Reeds Dam, Red Bank Creek, Brookville Water Supply Dam, Little Sandy Creek.

Lancaster—brook trout, Little Conestoga Creek, Tilt Hollow Run, Pequea Creek, Seglock Creek, Wissler's Run, Climbers Run, Donegal Creek, Hammer Creek, Longs Run, Indian Run; black bass, Safe Harbor Dam, Conowingo Dam.

Lawrence—black bass, Little Neshannock Creek, Slippery Rock Creek, Neshannock Creek; frogs, North Fork Little Beaver Creek, Lakewood Beach Dam, Carbon Quarry Hole, Youngstown Quarry Hole, Lower Pump House Dam, Quarry Hole No. 5, Neshannock Creek, Clement Dam on Big Run, Clarks Pond on New Wilmington Road; sunfish, Neshannock Creek, Cement Dam on Big Run, Clarks Pond on New Wilmington Road, Shenango River, North Fork Little Beaver River, Lakewood Beach Dam, Municipal Golf Course Dam, Carbon



ILLEGAL DEVICES FOR TAKING FISH—CONFISCATED HOOP NETS

Quarry Hole, Youngstown Quarry Hole, Lower Pump House Dam, Quarry Hole No. 5.

Lebanon—tadpoles, Little Swatara Creek, Conewago Creek, Swatara Creek, White Quarry Hole; yellow perch, Strouse Dam; sunfish, Little Swatara Creek, Swatara Creek, White Quarry Hole, Conewago Creek; catfish, Swatara Creek, White Quarry Hole, Little Swatara Creek, Conewago Creek.

Lehigh—tadpoles, Mill Creek; yellow perch, Foglesville Dam; sunfish, Foglesville Dam, Hosensock Creek, Indian Creek Park Dam on Indian Creek; catfish, Hosensock Creek, Indian Creek Park Dam on Indian Creek, Foglesville Dam, Sweitzer Creek.

Luzerne—brown trout, Linesville Creek, Lehigh River, Huntingdon Creek.

Lycoming—sunfish, Muncy Creek, Little Muncy Creek, Mill Creek; frogs, Mill Creek, Little Muncy Creek, Muncy Creek; brown trout, Little Pine Creek; catfish, Mill Creek, Little Muncy Creek, Muncy Creek.

McKean—sunfish, Mellander Pond, Hamlin Lake, Community Park Lake, Kushequa Pond on Kinzua Creek, Allegheny River; frogs, Gifford Pond; catfish, Allegheny River, Mellander Pond, Gifford Pond.

Meeker—black bass, Sandy Creek, Shenango River, Neshannock Creek.

Monroe—brown trout, Brodheads Creek.

Montgomery—tadpoles, East Branch Creek, Huntingdon Valley Creek, Pennypack Creek, Skippack Creek; black bass, Perkiomen Creek; sunfish, Hosensock Creek, Pennypack Creek, Huntingdon Valley Creek, Skippack Creek, East Branch Creek.

Northampton—brook trout, Saucon Creek; tadpoles, Gut Dam, Delaware River; sunfish, Paint Mill Dam on Monocacy Creek, Hyers Dam on Bushkill Creek, Jacoby Creek, Brays Lake, Gut Dam; catfish, Brays Lake, Jacoby Creek, Hyers Dam on Bushkill Creek, Paint Mill Dam on Monocacy Creek, Delaware River, Gut Dam.

Perry—brown trout, Little Juniata Creek.

Philadelphia—yellow perch, League Island Lake, Chamoniux Lake; sunfish, League Island Lake, Chamoniux Lake; catfish, League Island Lake, Chamoniux Lake.

Schuylkill—tadpoles, Cumbola Dam, Black Dam, Cats Pond; sunfish, Cats Pond, Black Dam or Suckers Pond, Cumbola Dam; catfish, Black Dam, Cats Pond, Cumbola Dam, Seitzinger Dam, Long Pond, Middleport Dam, Kunkles Dam, Sweet Arrow Lake, Biddles Pond, Rumbles Dam, Little Swatara Creek, Bittles Dam, Swatara Creek, Coney Island Dam, White Deer Lake, Kunkles Pond, Brick Yard Pond; suckers, Seitzingers Dam, Sweet Arrow Lake, Rumbles Dam, Bittles Dam, Brick Yard Dam, East Branch Little Swatara Creek; yellow perch, Black

Pond, Deer Lake, Cats Pond, Huntzinger Dam on Deep Creek, Romberger Dam on Deep Creek, Green Grove Dam on Deep Creek, Valley View Dam on Pine Creek, Mahoning Creek, Lizard Creek, Cumbola Dam, Lakewood Dam on Hosensock Creek, Patterson Dam No. 1, Patterson Dam No. 2, Patterson Dam No. 3, Old Union Canal, Dock Pond, Herbs Dam, Stileys Dam, Biddles Pond, Old Schuylkill Canal Basin, Sweet Arrow Lake, East Branch Little Swatara Creek, Coney Island Dam, Long Pond, Middleport Dam, Kunkles Dam, Yellow Pond, Biddles Pond, Bittles Dam, Swatara Creek, Good Spring Dam, Marlin Lake, Seitzinger Dam on Little Mahoning Creek, Roeders Dam, Brick Yard Pond, Kunkles Pond, The Tunnel Lake.

Snyder—brook trout, Kuhn-Hooven Creek; catfish, Penns Creek; tadpoles, Penns Creek.

Somerset—brown trout, Whites Creek, Wills Creek, Laurel Hill Creek; brook trout, Big Piney Run, Blue Hole Run, Piney Run, Breast Works Run, Drake Run, Jones Mill Run, Sandy Run, Iser Run, Beaver Dam Run, Brush Creek.

Tioga—brook trout, Long Run, Asaph Run; sunfish, Marsh Creek, Longwell Pond on Mill Creek, Gray Valley, Backs Pond on Black Creek, Crooked Creek; frogs, Marsh Creek, Longwell Pond on Mill Creek, Gray Valley, Black Pond on Black Creek, Crooked Creek; catfish, Marsh Creek, Black Pond on Black Creek, Gray Valley, Longwell Pond on Mill Creek, Crooked Creek.

Venango—frogs, Allegheny River, French Creek, Cooperstown Dam on Lake Creek, Sandy Creek, Polk State Sanitarium Dam; catfish, Allegheny River, French Creek, Cooperstown Dam on Lake Creek, Sandy Creek, Polk State Sanitarium Dam; sunfish, Allegheny River, French Creek, Cooperstown Dam on Lake Creek, Sandy Creek, Polk State Sanitarium Dam.

Warren—brown trout, Tionesta Creek, Caldwell Creek, East Branch Tionesta Creek; catfish, Conewango Creek, Allegheny River, Broken Straw Creek; minnows, Broken Straw Creek, Allegheny River, Conewango Creek; sunfish, Allegheny River, Conewango Creek, Broken Straw Creek.

Wayne—sunfish, Beaver Meadows Run; brown trout, Butternut Creek, Lackawaxen River, Little Equinunk Creek, Dyberry Creek, Equinunk Creek.

Westmoreland—brook trout, Right Branch Furnace Run, Shannon Run, Loyalhanna Creek, Powder Mill Run, North Fork of Mill Creek, Roaring Run, Mill Creek, South Fork of Mill Creek, Middle Fork of Mill Creek, Middle Fork of Mill Creek, Powder Mill Run.

York—brook trout, Bell Hollow Run, Orson Run, Fishing Creek, Toms Run, Leids Run; catfish, Fishing Creek, Broad Water Lake; tadpoles, Broad Water Lake, Fishing Creek.

SPECIAL WARDENS AID IN RAID ON STILL

Those live-wire sportsmen in Palmerton, take not only keen interest in stocking streams of Carbon County but keep a collective eagle eye on stocked waters after the fish have been planted. Just how alert they are is indicated by the following news

item which appeared in the *Palmerton Press*:

"Fish and game wardens of the Palmerton Rod and Gun Club led Federal investigators in a raid on Tuesday evening, September 10th, on a still located along the Blue Mountain stream, above the first school house.

"The raiding party, under Thomas F. Clark, Reading, of the Alcohol Tax division of the Federal Bureau of Internal Revenue, included six investigators from the department and three wardens from the Rod and Gun Club.

"A still of 250 gallons capacity, with 25 barrels of mash was found and destroyed on property belonging to Mrs. Ellen Young, who resides in Kresgeville.

"Dead fish had been observed recently in a feeder stream where no attempt had seemingly been made to avoid stream pollution from the refuse of the distilling plant. Club wardens had made an investigation and found the still in full blast the night before. At the time of the raid the still was not in operation.

"Officials of the Palmerton Rod & Gun Club want it to be definitely understood that information was given the Federal authorities solely in an effort to protect the streams and fish under their supervision.

"At time of going to press no information has been received as to whether or not any arrests have been made.

"On Wednesday night a party led by the wardens went to the place and dumped the mash where there is no danger of further pollution."

Writes Ira J. Bleiler, secretary of the Palmerton Rod and Gun Club:

"This article does not tell of the hours spent by five members of our club who are special fish wardens, during a dark night in a heavy downpour of rain in thickly wooded mountain section, hunting for the still which they knew must be in existence.

"We have been very careful to impress on the public that our only interest in the matter was to protect the fish planted in our streams by the State Fish Commission and that we were not attempting to enforce the State or Federal Liquor Laws.

"All the equipment of the still was wrecked and the mash was laboriously carried far back from the stream and buried in pits dug by our members. This job consumed the time of a squad of men working from five in the morning until 10 that following night."

And that, brother anglers, is taking real interest in the future of Pennsylvania fishing.

CHECK-UP REVEALS FIRST DAY CATCHES

On the opening day of bass season this year, a check-up on catches taken from the North Branch of the Susquehanna River, Wyalusing Creek, Tunkhannock Creek, Bowman's Creek, Lake Carey, Fords Lake, Cooks Pond and Tuscarora Lake was made by a group of officers headed by Warden Russell Womelsdorf of Kingston.

Three hundred and eighty-four anglers had taken the following fish: 189 small-mouth bass, 61 largemouth bass, 51 wall-eyed pike, 156 pickerel, 128 rock bass, 33

bullhead catfish, 91 yellow perch, 253 sunfish and one brown trout.

"I would estimate," writes Womelsdorf, "that 75 per cent of these fishermen spent the day on the North Branch, and most of the smallmouth bass, wall-eyed pike and rock bass were taken from that water."

THE CHIEF OF THE TROUT BRIGADE

by

GILBERT S. WATTS, Bellwood

*Half a league, half a league,
Many leagues onward
Up into the mountains
As the storm flashed and thundered.
"Forward" spoke the angler gay,
"What care I, I'm free today."
Into the realm of trout—
And he wished for a hundred.*

*"Forward", anon he'd say,
"Rain'll make them strike today"
Not though the angler knew
He would presently blunder.
His not to cuss the fly—
His not to buy and lie—
His but to cast and try.
Into the foaming brook
Casts he made hundreds and hundreds.*

*Trout to the right of him—
Trout to the left of him—
Trout to the front of him—
Jumped nearly unnumbered,
A few to his Parmachene Belle.
Boldly they fought and well
Into the jaws of death
Into the landing net
Went some of the hundred.*

*Dashed a great beauty where—
Flashed as he rose in air—
Fighting the angler there
Rushing bravely while
The line nearly sundered.
Plunged in the swirling deep—
Frantic his freedom to keep—
Jigging and jumping.
Reeled close on cautious stroke
Released ere the line was broke
Deep in the pool he tore
Seeking hazards unnumbered.*

*Snags to the right of him
Snags to the left of him
Snags behind him
He caught the line on a hundred.
Long will the angler tell
"Salvelinus stole my Parmachene Belle"
He that had fought so well
Snapped the glistening snell
Tore away as a demon of Hell
He that was chief of them
Chief of hundreds.*

*When can his glory fade?
What rushes wild he made!
While the angler wondered.
Honor the fight he made
Chief of the Trout Brigade
Most noble of hundreds.*

"Tenschun—Sportsmen"

Will some organized club of sportsmen in every ONE of the following counties: Lackawanna, Bradford, Susquehanna, Wayne and Wyoming, take it upon themselves to call a meeting of all the organized sportsmen's clubs in EVERY ONE of these counties and make every effort to organize a COUNTY UNIT. This should be done within the very immediate future, and certainly every county should be actively organized before the next annual State Federation which will be held February 12, 1936, in Harrisburg, Pa.

These counties are all in the North Eastern Division, which has been recently organized, and every effort is being made to have an aggressive, constructive, enthusiastic division. **WILL YOU HELP?**

For any further information will you please communicate with the Division Secretary, W. H. Barto, Weatherly, Pa.

Slogan: "United we stick—divided we are stuck."

ANSWER TO "LAST LAUGH"

That letter from Angler Cornish about the "Last Laugh" on Killwell Creek brown trout which appeared in a recent issue of the ANGLER apparently has won the day. Warden R. C. Bailey writes:

"Mr. Cornish might possibly have taken a bass from Killwell Creek. However, up until the last Saturday in July, he was the only person to report a catch of this kind to me. Then, just to rub it in, I caught a legal sized smallmouth bass from this stream myself, and at a point farther upstream than where we met Mr. Cornish. Those darn fish will swim upstream."

All of which just about closes the argument, as we see it.

The North Branch in the vicinity of Laceyville has been providing good bass fishing this year, writes Warden Myron Shoemaker. Catches of ten bass were made by Dr. John Loman and his father of Kingston, Mr. Roberts of Pittston and Dr. J. R. Beaver of West Pittston.

SETH SAYS



I been doin' a little checkin' up on them young trout the boys put in the run back in Bear Gap this spring, an' mebbe they ain't doin' fine. Fer one thing, there's plenty o' laurel an' brush a-lin' the holes, an' here an' there some old sunk logs. Them there trout is some o' them four er five inches long anyway. Jest as lively little critters as wild trout, too, an' when they drops down inter the bigger crick we oughter have a heap sight better fishin'. Ter my way o' thinkin' this here stockin' with what they calls fingerlin' fish is a gonner show up good afore many years has passed.

On my way up inter the gap, I saw some mighty nice big trout. They was amovin' up ter the headwaters in their spawnin' run, an' say mebbe it wasn't a picture to see some o' them ten and twelve inch speckled trout a shootin' through the riffles. The water's been a little low, but there's enuf ter winter the trout okay an' we oughter have some rattlin' good fishin' next spring.

Some o' the younguns has been doin' some sucker fishin' this fall, an' from what Jerry Tims tells me they been ketchin' some most tarnal nice suckers. Jest takes some good cold weather ter make the suckers start abitin' an' ter make them good eatin' fer the table.

Well, fellers, I'll be a signin' off now, fer I reckon this month the hunters is in full swing an' the woods is callin' most powerful strong fer a squirrel hunt this evenin'.

ALLEGHENY CATCHES

The Allegheny River and its tributaries provided excellent fishing for everything from sunnies to muskies this year, writes Warden R. C. Bailey of Youngsville. H. P. Shawkey, veteran Warren angler, caught a muskie near Hemlock that measured 30 inches in length. It was taken on a red and white bucktail, fished with fly-rod. James Zerfoss of Youngsville, Shawkey's fishing companion, caught a 24½ inch muskie, using a light steel casting rod, tandem spinner with bucktail lure.



YOUNG BULLHEAD CATFISH.

LANCASTER SPORTSMEN HOLD BIG OUTING

According to word received from R. S. Sullenberger, secretary of the Federated Sportsmen of Lancaster County, the first annual outing and ox roast held by this organization in September at Kiwanis Park was an outstanding success. Peak attendance was conservatively estimated at 2000. A varied program was enjoyed.

In listing accomplishments of the Federation along conservation lines, attention was called to the fact that it was instrumental in persuading the County Commissioners to apply for a stream improvement project with S.E.R.B. funds. Sullenberger writes that a new stream improvement project entailing expenditure of \$34,000 has already been started.

BOARD OF FISH COMMISSIONERS

HARRISBURG, PA.

SUBSCRIPTION BLANK

Enclosed find fifty cents (\$.50) for one year's subscription to PENNSYLVANIA ANGLER.

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HERE ^{A_ND} THERE IN ANGLERDOM



Generally recognized as "big game" for Pennsylvania anglers, muskellunge have been caught frequently by fishermen in the northwestern counties of the State this year, according to Warden W. E. Briggs, of Waterford, Erie County. Fishing in Lake LeBoeuf, Erie County, George Gaub, of Meadville, hooked and finally subdued a water tiger measuring 47 inches in length and weighing 25 pounds, 6 ounces. He was assisted in boating the catch by C. P. Kinney of Meadville. Bruce Owens of Waterford and Dan Toner of Union City, while fishing in LeBoeuf from the same boat, each landed a 10-pound muskie.

Mrs. Evelyn Wonder, of Lititz, caught a brown trout weighing one and three-quarter pounds from Hammer Creek, Lancaster County, according to Abraham R. Hershey, secretary of the Lititz Sportsmen's Association, affiliated with the State Federation of Sportsmen's Clubs. This association has been very active in stocking fish and game.

October fishing on the North Branch with fly has been excellent, according to Warden Myron Shoemaker of Laceyville. Here are some of the big bass reported, all smallmouths: M. Conrad, Towanda, one 17½ inch bass; Floyd Gale, Towanda, one bass, 20 inches, 3 pounds, 8 ounces, one 2 pounds, 15 ounces, and one 2 pounds, 4 ounces; Lee Robbin, Towanda, one 17½ inch bass; Paul McCracken, Towanda, two bass, each weighing 2 pounds, 2 ounces; Fred Bahr, Laceyville, two bass, one 17½ inches, weight 2 pounds, 12 ounces, and the other 19½ inches, weight 4 pounds.

Some good wall-eyed pike have also been taken on the Branch. One caught by Earl Harris, of Towanda, measured 25 inches in length, while John Kozar, Towanda, caught a pike, weighing 4 pounds, 12 ounces.

Three anglers contacted by Warden R. C. Bailey at 8 o'clock in the morning on July 22d, had taken 22 black bass and 9 rock bass. They were fishing crayfish at Irvine's Bridge on the Allegheny.

An extremely heavy 18-inch smallmouth bass was caught by Chief of Police Frank Dunkle, of Youngsville, at Dunn's Eddy on the Allegheny. It was 7½ inches in depth and weighed 4½ pounds. He also caught seven other nice bass on this trip.

While fishing in the Allegheny near the new Hunter bridge, writes Warden J. H. Hall, of Seneca, Charles Corliss, of Hunter Station landed a big river muskie. His

Joins "Doubles Club"

Vincent Aaron, Corsica taxidermist, is now a member of that exclusive anglers' fraternity—"The Doubles Club," according to Warden R. C. Bailey of Youngsville. While plug casting on the Allegheny near Tidioute, he hooked and landed two smallmouth bass simultaneously. One of the fish measured 12 inches, the other 13.

A few minutes later, Aaron hooked a nice muskellunge in a bayou near the Forest County line, but the muskie broke away.

Speaking of thrills, those two came in rapid-fire order.

catch measured 43 inches in length and weighed 16 pounds.

The Susquehanna River near Catawissa yielded a 29½-inch carp weighing 15½ pounds to Mrs. Walter Mann of Mount Carmel, according to Peter Patricoski, of Mount Carmel. Mrs. Mann was using dough bait when she made the catch.

Dave Jones, of Wilkes-Barre, caught a 24-inch wall-eyed pike weighing 4½ pounds in Lake Carey early in the season, writes Warden Russell Womelsdorf of Kingston. Lake Carey also yielded a 26-inch pike weighing 5 pounds to Joe Mock of Larksville; Joe Lazur, Larksville, caught a 26-inch pike weighing 5 pounds, 6 ounces, and Sorrell O'Malley, of Plains, landed a 26½ inch pike weighing 7 pounds and having a girth of 14½ inches.

Harvey's Lake, a favorite fishing ground for Luzerne County anglers, produced some good lake trout fishing in July, reports Womelsdorf. Deep trolling yielded a lake trout measuring 29½ inches in length and weighing 7½ pounds to Harry Meiss, Luzerne County game protector. George Armitage scored with two lake trout, each weighing 6 pounds in one half hour's fishing, while Joe Pikas and Stan Gregg, both of Wilkes-Barre, succeeded in landing one measuring 30 inches and weighing 7 pounds.

Some exceptionally fine calico bass were caught in Comfort Lake, Susquehanna County, this season, according to Warden LeRoy Noll. William Main, of Susquehanna, caught 11 beauties one day in July, ranging in size from 10 to 12 inches. Every one of the fish weighed one pound or better.

R. T. Krape, 91-year old fishing veteran, known as the "grand old man of Clinton



**EIGHT SMALLMOUTH BASS
TAKEN FROM THE ALLEGHENY
NEAR TIDIOUTE BY LESLIE
BARNES OF TIDIOUTE.**

County's angling fraternity," proved that he still merits the title of an A-number one angler during the 1935 trout season. Fishing in Plum Run, he landed a magnificent specimen of the brook trout clan, 16 inches in length.

Leon Maxton, of Malvern, scored with a fine brown trout from Valley Stream during the past season. He landed a brownie measuring 21 inches in length and weighing 3 pounds 12 ounces.

Five suckers having a combined weight of 14 pounds and 14 ounces were caught one day in May by Guy Bond and Simie Darlington of Malvern. The largest sucker measured 22 inches in length and weighed 3 pounds, 12 ounces.

A 22-inch brown trout weighing 5 pounds was taken in Straight Creek, Elk County, by Mrs. Bessie Jarrett of Bradford, according to Warden Robert J. Chrisman.

The Susquehanna River yielded a 22-inch wall-eye to Kenneth Garrison of Williamsport. Garrison's catch weighed 3 pounds, 14 ounces.



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Pennsylvania Angler



The PENNSYLVANIA ANGLER
EXTENDS
CHRISTMAS GREETINGS
TO ITS READERS
★
MAY 1936 BRING MANY HAPPY DAYS ASTREAM.

OFFICIAL STATE
PUBLICATION

PENNSYLVANIA ANGLER

DECEMBER, 1935

Vol. 4 No. 12

PUBLISHED MONTHLY

by the

PENNSYLVANIA BOARD OF FISH
COMMISSIONERS

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ALEX P. SWEIGART, *Editor*

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PENNSYLVANIA ANGLER

Vol. 4 No. 12

DECEMBER, 1935

EDITORIAL

"Let John Do It"

In reviewing the past year of fish conservation achievement in Pennsylvania, one cannot fail to feel the constantly rising interest that has been taken by our anglers in betterment of their sport. To a greater extent than during any preceding year, stream improvement projects on many trout waters were backed by organized sportsmen and individuals. The CCC camps also did splendid work in this respect, and the 1935 stream improvement program should definitely aid in bringing better trout fishing next year.

Our drive on the watersnake, fish enemy No. 1 of the predator group, assumed state wide proportions. While boys competed for medals offered by the department in the snake-killing campaign, many of our sportsmen organized drives and definitely thinned down the number of these destructive reptiles on our warm water and trout streams.

Of equal importance to the better fishing cause was the increased interest taken by our anglers in fishing artificial lures for game fish, and in using no more live bait than necessary. The saving of forage fishes that formerly were taken from many waters for bait purposes must be accounted another definite forward step in the promotion of the angler's sport. This three-fold program, so successfully fostered during 1935, should bear fruit on many fishing waters in future years. Primarily, it represents the efforts of our splendid army of Pennsylvania anglers, who look to the future in aiding their sport.

Backing the program I have just outlined is another that is gradually rising until it must eventually submerge all opposition. I refer to the war against stream pollution, a battle to give back to Pennsylvanians the God-given right of clean water. True, the anti-pollution bill introduced by



Senator Thompson, during the last session of the Legislature, failed of passage. But it did serve to arouse the people of this state to the vital necessity of pollution control, and an aroused public cannot be constantly denied. Work has already been started in the sealing of abandoned coal mines, a definite step in the right direction.

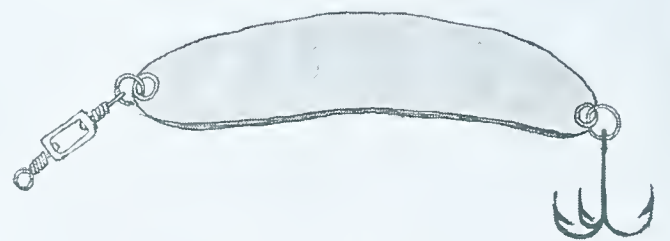
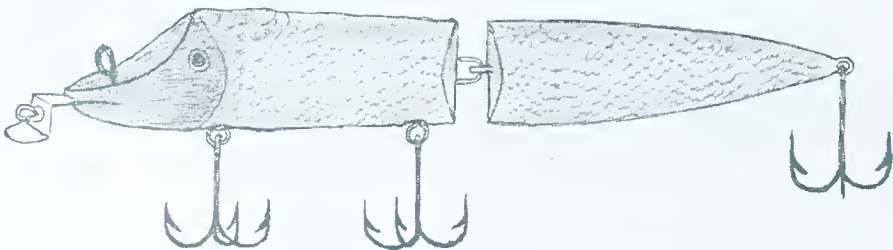
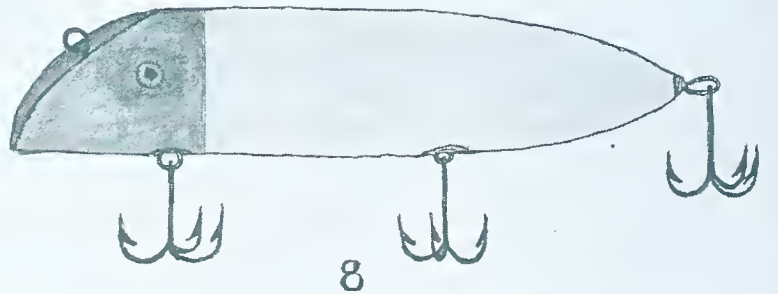
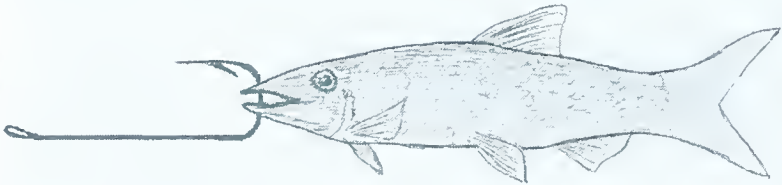
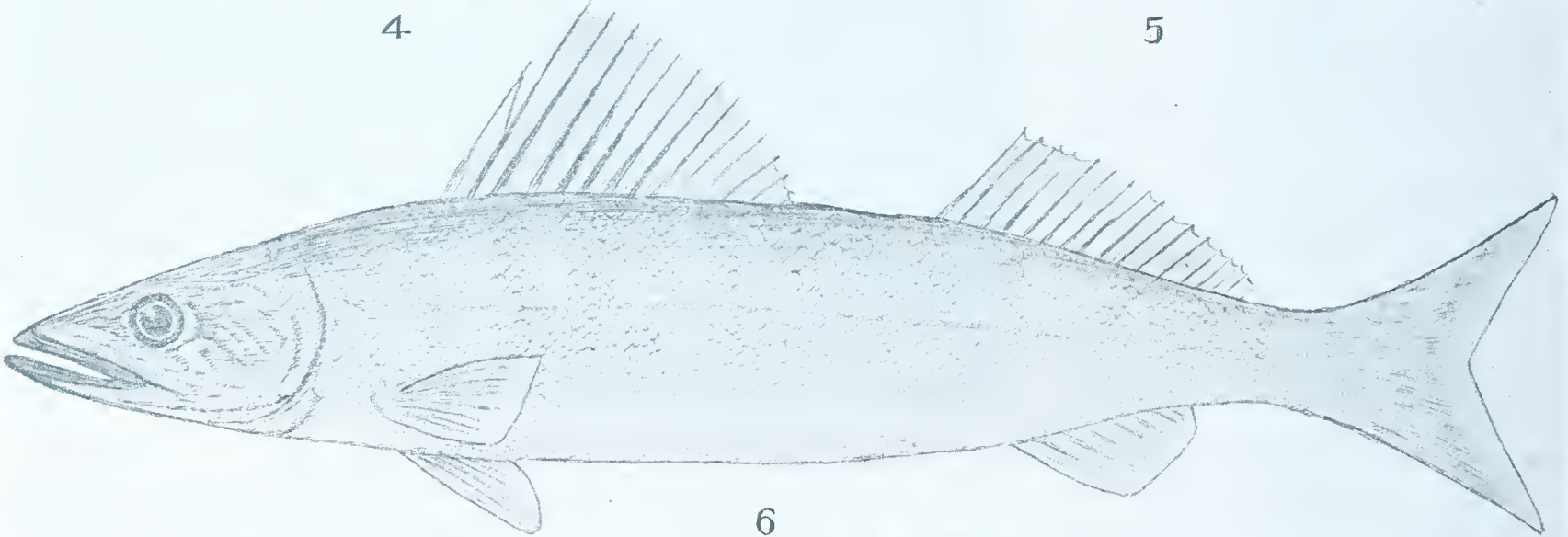
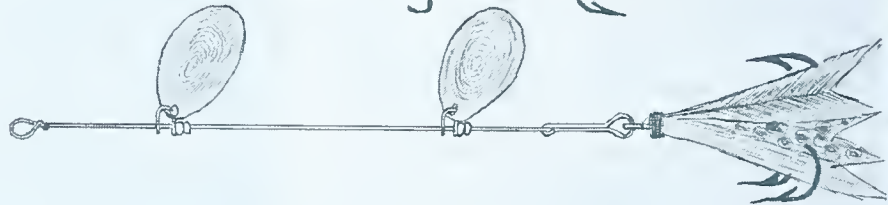
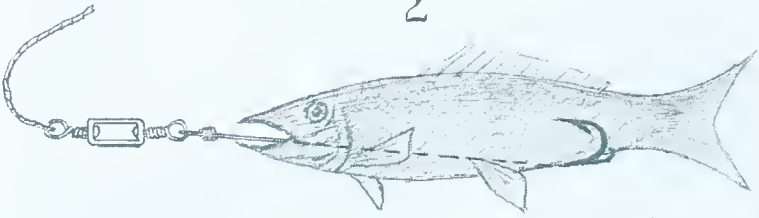
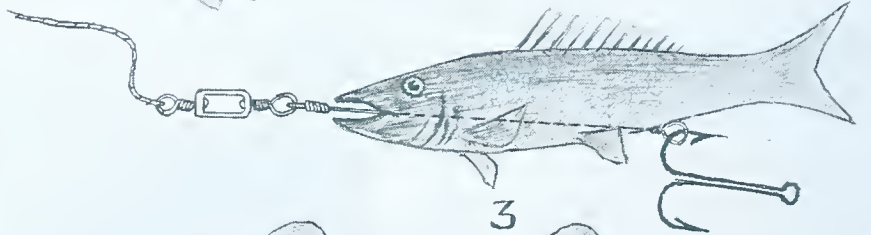
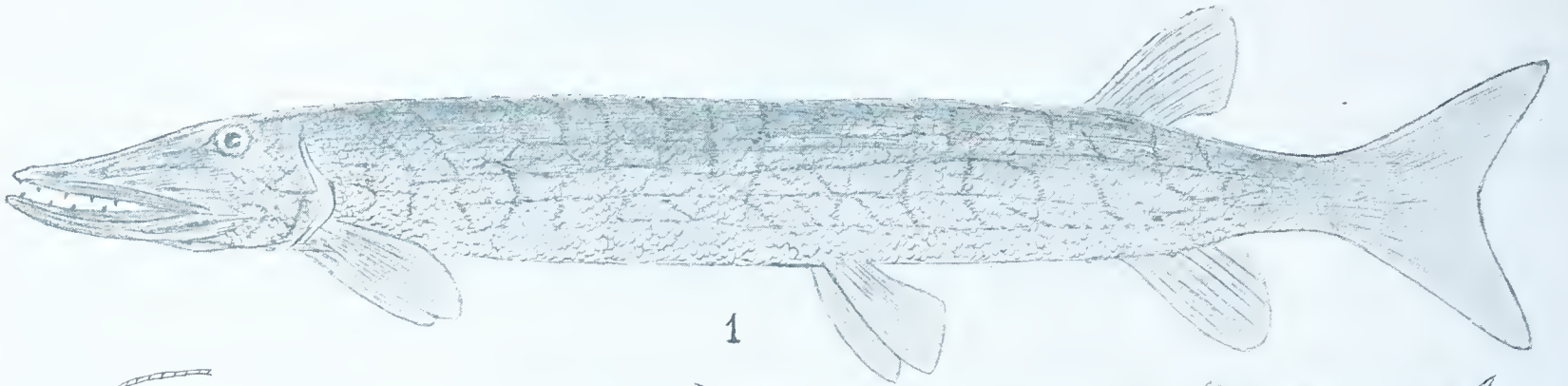
It is not my purpose in this message to our fishermen to stint cold facts. It is true that many of our anglers did their part in stream improvement. But many others, who also had an opportunity to share in this work, assumed the attitude "Let John Do It." There is an old saying that runs "A chain is no stronger than its weakest link." I believe that we have forged a strong chain for fishing betterment here in Pennsylvania with our anglers themselves furnishing the links. We must constantly bear in mind, however, that new recruits to the better fishing

cause will serve to strengthen this chain, and the stronger it is, the more cooperation that exists in the ranks of the fishermen, the sooner our objective will be attained.

The time for resolution making. New Year Day, is approaching, and what finer resolution could a fisherman make on the first of the new year than to determine to do his part in bettering his sport and the sport of his fellow anglers?

In closing this message to you, I extend heartiest wishes for a Merry Christmas and a Happy New Year. May you enjoy many happy days astream in 1936.

Commissioner of Fisheries



Wall-Eyed Pike and Pickerel Fishing

By Chas. M. Wetzel

TWO fish found in our waters, namely *Esox reticulatus*, the pickerel, and *Stizostedion vitreum*, the wall-eyed pike, furnish excellent sport throughout the season and as food fish both rank high. Lacking the savage ferocity of the bass, they nevertheless put up a good fight when caught especially if it be on light tackle.

One of the first requisites of a successful fisherman is having an intimate knowledge of the fish he is trying to catch, especially as to lurking places, habits, preference for food and countless other factors which enter into its capture.

The pickerel, Fig. 1 (commonly called pike) is found in both lakes and streams but rarely in the swift water or riffles. Look for them in slow moving foam flecked pools fringed with pond lilies, and especially along the sunny shallow shore lines, that is, if cover like lily pads, a submerged log, stump or rock is conveniently at hand.

If on a stream or lake where the ruffled pond weed abounds one can oft times see the head of this fish protruding from the weed beds. Its body concealed by the weeds, it lies there motionless as if asleep, yet all the while, waiting, tense and alert, ready to rush forth and grab some unsuspecting minnow which had ventured too close. The sharp teeth of the pike proclaim it a predator and its main food consists of small fish and minnows; death lurks in its wake and like an avenging demon it rushes upon its victim with such incredible swiftness, that the eye can scarcely follow it.

The old time anglers used either a live minnow hooked through the lips as illustrated in Fig. 7 or the gadget as shown in Figs. 2, 3 and 4. As can be seen the latter is a piece of stiff piano wire, equipped with a swivel having a loop at end for attaching the double hook, after it is run through the minnow. Should a new bait become necessary it is a relatively simple matter to disengage the hook from the loop or ring and attach a new fish or bait. This combination is known as the spinning minnow due to its twirling motion as it is being drawn through the water. Sometimes two swivels are employed to facilitate this spinning motion and oft times an additional piece of wire is used to prevent the pike cutting the line with its sharp teeth.

This method of fishing the spinning minnow, as employed by the old timers, involves the use of a long cane pole and a line a few feet longer. The bait is tossed out to some likely looking place—allowed to sink a moment, then is drawn through the water in a series of jerks, each approximating four feet in length, alternating with short pauses. The spinning of the minnow as it is being drawn through the water creates a commotion that attracts the fish; and is comparable to an injured minnow as it works its way through the water in fitful jerks. As is customary in bait fishing, after the pike seizes the minnow, it should

not be hooked until the start of the second run.

A feathered treble hook and spinner combination that will catch pickerel or pike when all other lures fail, is illustrated in Fig. 5. It is undoubtedly one of the greatest lures on the market and when the fish refuse to take it, you may as well pack up and go home. I have used this lure alongside of some veteran bait fishermen whose scoffing remarks about "catching pike on flies," later turned to open-mouthed amazement at the number of fish it brought from the water. I use this combination on a heavy fly rod and in fact it has been my favorite pike lure for the past ten years.

The fly I tie myself but a somewhat similar one can be procured at any tackle shop. Select one with white, yellow and red feathers, generously sprinkled with feathers from a guinea.

I get a big thrill out of fishing this combination, especially in clear water when the flash of the pickerel as it strikes the lure is usually visible. Frequently one can see the pike gliding after the lure, much like a cat with a mouse and at such times it is necessary to impart a certain impetus or "kick" to the fly, which will tempt the fish into striking. Do this before the pike approaches too close, for if it once sights you, it will pause, sink and merge with the water until out of sight, when it will probably remain down for some time.

This "kick" is accomplished by creating one or two abrupt jerks in a horizontal plane, followed by a slow steady upward pull which will cause the fly to come to the surface. The closer the lure approaches a vertical plane as it is being drawn from the water—the more effective it will be. The sudden jerk of the fly arouses the fish to a high degree of excitability and when once in this frame of mind, the sight of the fly traveling upwards towards the surface as if escaping, (much like an aquatic nymph about to transform into the winged fly) is the final "coup de grace" that will goad the fish into striking.

A peculiarity of the pickerel is, that if it is not severely hooked the first time, it will usually rise again to the fly, sometimes three or four times. The feathered hook I described above is not the only fly that the pike will take. The Paramachene Belle and the Red Ibis, (both excellent bass flies) work equally well on the pickerel.

The pearl wobbler or spoon shown in Fig. 10, is another excellent lure for this fish. One old chap I know uses nothing else. He constructs all his own spoons from mussels found on the stream and he catches plenty of fish on them, too.

Plugs appear to work best in Pennsylvania waters during the fall, when the nights are chilly and a tang of frost is in the air. This is undoubtedly the best season of the year for fishing and probably two of the most successful plugs are illustrated in Figs. 8 and 9. I have developed an extra fondness for the latter or jointed

plug; and the one in my tackle box, which I have successfully kept over a period of years, bears numerous tooth marks of fish in proof of its efficacy.

Sometime ago while fishing Tuscarora Creek with the editor of the *ANGLER*, he voiced the opinion that the majority of anglers reeled too slowly in retrieving the plug. In this I heartily concurred, for I have verified it time after time from various strategic positions when I have been enabled to watch the reaction of the fish to the lure. To arouse the fish to the striking point, it is necessary to impart action to the plug as it is being drawn through the water; and nothing will accomplish this more surely than swift spasmodic reeling. This was brought forcibly to my attention on a certain Canadian stream, when a sixteen-year old boy—a master of the short rod—by reeling and retrieving the plug in such swift spasmodic jerks, held me spell-bound by the number of pickerel and great Northern pike he was regularly catching.

The Wall-Eyed Pike

This fish illustrated in Fig. 6 is known under a variety of names as the pike perch, yellow pike, dorè, Susquehanna salmon, pickerel and wall-eyed pike. In Canada it is commonly known as the pickerel, but we know it best as the wall-eyed pike, due no doubt to the dull lifeless, blue glazed color of its eyes. It is more or less a nocturnal fish and at night its eyes glow with a luminous glare. The term Susquehanna salmon is a misnomer for we cannot claim this fish as being indigenous to our river.

A number of years ago while trolling in Conneaut Lake, I inquired of a passing fisherman how the muskies were hitting.

"They're not," he replied. "I'm trolling for salmon."

"Salmon," I echoed blankly! And then I remembered the name locally given long ago to this fish, by the old residents along the Susquehanna River. Many of their descendants are still unknowingly catching "salmon" (wall-eyed pike) from the same stream, yet some loudly lament the good old days, "When there was salmon in the river, an' it wasn't any trick at all fer Pop t'go out an' spear one three feet long fer breakfast."

Pike-perch is a very fitting name as it has certain pronounced characteristics of both of these fish in its make-up. Chief of these is the large fan-like dorsal fin, with its numerous sharp spines—distinctly a perch characteristic. It occasionally happens that while cleaning the wall-eyed pike, these dorsal spines become imbedded in the fingers and are broken off with the result that a very painful wound may materialize. After a number of such experiences, I have made it a point to first remove this fin with the aid of a pair of pliers—before scaling the fish.

The majority of wall-eyed pike are probably caught while trolling with either a tandem or June bug spinner having a long wriggling night crawler trailing behind.

This is one of the most popular rigs on Lake Wallenpaupack and as I illustrated this combination in the August issue of the ANGLER—I deem it unnecessary to repeat it here. When fishing this lake, by all means go prepared with a number of weedless hooks and spinners, as the lake bottom has numerous old stumps, many of which are decorated with lures lost by unfortunate anglers.

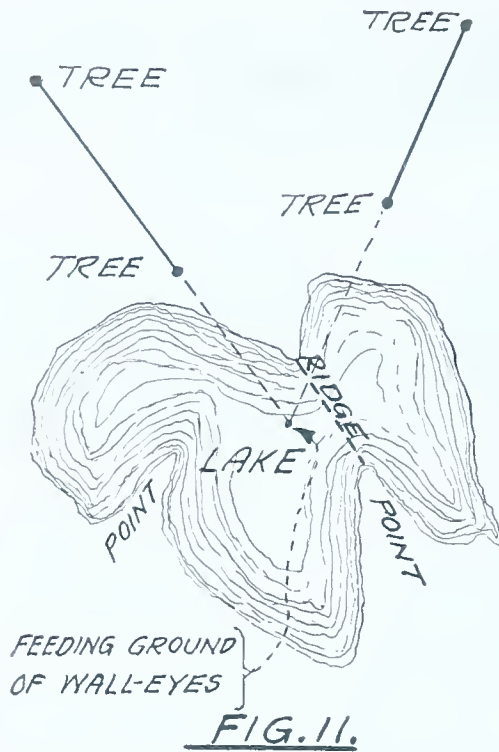
Wall-eyed pike love deep water, although they are not always found there. Their ideal lurking place is along some ledge, where the shallow water drops off sharply to a deep hole. If you are unacquainted with the lake, it often pays to take soundings in trying to locate such places. I have done this frequently on Lake Wallenpaupack and one place in particular that I located, has well repaid me for my labor. This was a large deep hole, formed by excavating before the lake was flooded. The excavated material was used as a fill in constructing a dyke along one side of the lake, and the stream bottom dropped off sheer to a depth of twenty feet or so in the hole.

Another point is to observe carefully the contour of the shore line. If a ridge or mountain appears to be terminating near the water—forming a point—chances are that this downward slope or declivity will continue for some distance out in the lake; probably the ridge may continue underneath the water to the far shore, as illustrated by the dotted line in Fig. 11. In either case fishing off such points and in the nearby bays and coves, will usually yield good results; the reason probably being that this area is richer in food value than other portions of the lake.

It seems plausible to believe that during violent storms, insect larvae, various crustaceans and mollusca, are dislodged by the waves from their respective locations and are aimlessly carried around, until this obstruction of the hidden ridge is met, where they again obtain a new foothold. It does not necessarily follow that wall-eyes and other large fish feed on such minute aquatic life, (many of them do, to a far greater extent than we realize) but small fish hover around such localities, and these in turn are preyed upon by the larger species. In fishing strange waters, where the character of the stream bed is unknown, I always concentrate my activities around such points and usually I am well repaid.

Troll slow and deep and after the first wall-eye has been caught, one should fix the location carefully for future use, bearing in mind that these fish travel in schools and have certain foraging grounds over which they periodically feed. This location may be fixed either by use of a buoy, that is by anchoring some object which floats on the surface; or as an alternative by lining up four objects on the shore line which intersect at a common point as illustrated in Fig. 11. The latter method is undoubtedly the best, as the exact spot can later be closely approximated, that is if one rows around in the vicinity until the four objects are visible and in line. These objects may be trees, houses, a cleft in the mountain or in fact any permanent markers. In Fig. 11 I have used trees to illustrate the point.

This is the best way of fixing the spot where the wall-eyes feed, as the secret of



the locality remains with the angler who discovered it, and no tell tale signs are floating on the surface to arouse the suspicion of other fishermen, who may be trolling in the immediate vicinity. Its main disadvantage lies in the difficulty of remembering the four objects on the shore line. Usually after the first fish has been caught, the boat is anchored and plenty of time can be had for "contemplation" and fixing the spot in mind, while still fishing.

On the North Branch of the Susquehanna River near Tunkhannock, I have had good results with a Paramachene Belle fly and a tandem spinner. This was in a deep swift riffle, at the head of a long slow moving stretch of water.

Plugs are also good and the green and yellow frog finish is one of the best for swift water. An instance where this plug scored heavily, I should like to relate.

Just below a splash dam on the Montreal River in Northern Ontario, is a stretch of water that sullenly glides along with a menacing stride—so swiftly, that one involuntarily shudders at the thought of what fate may have in store for anyone, who might be so unfortunate as to fall in. Slightly below at the head of the logs which covered the river for miles downstream, the current increased in turbulence and broke up with a roar that caused a continual cloud of spray to emanate from the water. In the midst of this white boiling cauldron I had the temerity to cast a frog finish plug—not with any expectation of getting a strike, but more out of idle curiosity to see if any fish could by chance exist in such a spot.

Casting upstream and across, the current caused a deep "belly" in the line and exerted such a powerful drag on the plug, that the results were unknown until the line drew into the calmer water. Then the tugging on the line proclaimed a large fish. It was a wall-eye, thirty inches long—the only one I kept of the twenty I subsequently removed from the center of the "white water." Various plugs were also tried in this spot, but all were ignored with the exception of the one with the frog finish.

Immediately before and during storms, the wall-eyes are near the surface of the

water and at such times it often pays to reverse the procedure of trolling slow and deep. Still fishing with live minnows proves excellent when a pocket is discovered.

On Lake Wallenpaupack I have used a copper line for trolling similar to that used in lake trout fishing. It has the advantage of going down deep, but the thrill of fighting the fish is diminished to a marked degree.

After all, wall-eyes are not such great scrappers—their greatest desire is to bore down towards the bottom when hooked, so that the use of a copper line should not be too severely condemned.



SETH SAYS

'Tain't hard ter git a argyment started over to the store some night when the boys is together. An' I'm a sayin' thet when it comes ter argyment-makin'. Jerry Tims

takes the cake. We was all a sittin' around not talkin' 'bout anything in perticaler when Jerry pipes up an' says he figgers there ain't nothin' harder on our fishin' than these here carp thet's in the big crick. Right then an' there I sez my piece an' we was a-goin'. Jerry says as how the carp is spawn eaters an' keeps the water riled up when they're workin' around. Now, I ain't sayin' carp don't rile the water fer emy feller thet fishes knows they do. An' I also agrees with Jerry thet they do some harm ter water plants an' sech-like. This here hurtin' the plant-life in our streams is what they're bad at.

But here's some things about the carp thet ain't so bad. Mehbe ye've noticed in some o' the deep holes a school o' twenty er more gol-wallop'n' big carp. The funny thing is, a feller don't see so many young carp. Now, then, I reckon them young carp is furnishin' our bass an' pike with a most powerful lot o' good food. I ain't seen any big jump in the number o' carp in our crick durin' the past ten years. A big female carp mebbe will spawn seventy-five thousand eggs, an' from what I hear, most o' the eggs hatch an' the young is hardy little fellers. Sumpin' happens to 'em an' I reckon the pike an' bass must keep 'em down.

Right now I kin show you a dozen good fishermen an' good sports in this neck o' the woods thet likes ter fish fer carp. Ef they're gonner be thinned down, it's up ter the fishermen ter do it, an' hev a lot o' fun hook-an'-line fishin' fer them.

I don't like the carp's bein' here any more then the next feller, but they're here an' it's up ter us ter keep 'em from gettin' too plenty.

Alex Skinder, enthusiastic fisherman of Pittsburgh, certainly has the striking habits of largemouth bass in the Oneida dam, Butler County, down pat, according to Warden J. H. Bergman. Five big bass taken in a day's fishing, it is reported, measured from 14 to 18 inches and tipped the scales for a combined weight of 19½ pounds.

Believe it or not, eels have scales, deeply imbedded in the skin.

Hatchery Trout Go Wild Over Night

Experiments Prove Them Robust Foragers

By Russell F. Lord, U. S. Bureau of Fisheries, Pittsford, Vermont

COURTESY—AMERICAN GAME

EDITOR'S NOTE: *In the first part of this paper, published in the November issue of this magazine, Mr. Lord described the purpose of this experiment to determine the ability of hatchery reared trout to forage for themselves when liberated, and to ascertain definitely the game qualities of these fish when hooked by the angler.*

Marked brook and rainbow trout were liberated at selected points, and attempts made to recapture, by ordinary fishing methods, at least ten each day thereafter. Only once was the full quota of ten rainbows taken, and on two occasions only were ten brook trout caught.

The stomach contents of the fish retaken were examined and the report presented in the first part of the paper. Briefly, these hatchery trout had apparently no difficulty in recognizing natural prey as food nor in capturing it in sufficient quantity to maintain themselves in perfect condition. And when hooked, their behavior was all that might be asked by the most exacting angler.

TO those who believe that hatchery fish are trusting creatures that when placed in a stream they will blithely scull up to the designing angler and beg him for small favors, let me say that the liberation experiments with the brook and rainbow yearlings showed these notions to be more than slightly exaggerated.

As already mentioned, it was the intention to take ten fish per day until all had been recaptured, but this proved difficult to carry out. The brook in both years was low and clear and as much care had to be taken to keep hidden from the hatchery-reared fish while casting as in any normal fishing. It must also be mentioned that there were no other anglers on the stream to disturb the fish, for the experiments, to be successful, had to be carried on after the regular Vermont season had closed. Competition was thus eliminated. Furthermore, both anglers engaged in capturing the fish were very familiar with the section of the brook in question, having fished it time and time again. They knew just how to present flies in any one pool to make them appear most inviting. And finally, the exact number of prospective victims was known, just where they had been placed, and just where they would most likely go. Thus it appeared as if the anglers had everything their own way, but the supposedly unsuspecting, hand-reared creatures had ideas of their own.

Rainbow "Came Hard"

It is no exaggeration to say that the fish recaptured were well earned. The rainbows particularly "came hard." It was

rather annoying to observe a dozen in a certain pool calmly ignore the offered lures despite the best efforts of the anglers. Not a fish in this pool was taken until the seventh day following liberation, and then only by means of a lowly worm when the water was murky from a heavy rain. When pricked, both rainbow and brook did their best to escape by leaping from the water or boring against the bottom in a manner gallant enough to bring a smile to the face of any angler. Of the two species, the rainbow, as already mentioned, was harder to catch. Fishing for rainbows continued with varying intensity up to and including Sept. 25, 1933, with a final tally of 49 fish recaptured. During this period despite offerings of everything from trout flies to grasshoppers and worms, the fish responded only when it pleased them to do so.

Fishing for brook trout continued from August 19 to September 5 with the good recovery record of 82% of the 100 trout liberated. Figuring up the time spent in capturing the brook trout, I found that it required approximately fifteen minutes of fishing effort by two people for every trout captured. This does not indicate that the hatchery trout were easy to apprehend.

As for the appearance of the trout, both species were very easy to look at. They were not the typical, dull-colored, pot-bellied type of trout which used to be found all too often at hatcheries. They were nice heavy-shouldered fish, lithe and trim. A diet containing a liberal percentage of salmon-egg meal had resulted in colors that no wild fish would have been ashamed of. Spots on the brook trout were red, the bands gleaming on each side of the rainbows were red, fins of both species were brightly tinted. As for size, although not to be compared with the large trout which can be taken from relatively unexploited waters, they would make a very satisfactory reward for angling in civilized territory.

Opposite in Movement

The rainbow trout reacted differently than the brook trout of the earlier experiment. That is, the tendency to run with the current was much greater. For example, out of 49 recaptured rainbows, 58% were taken downstream from the liberation pools, 29% in the pools themselves, and only 13% upstream from them. On the other hand, 82 recaptured brook trout reacted in opposite fashion, 61% being caught upstream from the places of planting, 23% from the pools themselves and only 18% downstream from them.

It took several days for the brook trout to work upstream so that fish from one liberation pool would over-lap those from

a pool further up, but rainbows were taken the second day following their freedom as far as 300 yards below the place of planting. The rainbows without doubt showed their tendency to drift, fish being observed after 10 minutes' freedom, 30 yards further down stream. This trait of rainbow trout, disliking to "stay put," is one of the major objections to indiscriminate stocking with the species.

When it was discovered that the rainbows were going to be difficult to recapture, several efforts were made to find the fish for as much as half a mile below the lowest liberation pool, but not until the fishermen had worked up within a hundred yards or so of this spot was a single marked trout taken. At the same time, many wild rainbows were caught so there was plenty of evidence that fish were feeding.

Two Slants on Movement

The observation was interpreted as meaning one of two things—either a great many fish had kept moving until they were out of reach far down the brook, or else they had found protected spots within a hundred yards or so of the liberation pools and were merely refusing the lures as was so often the case. A later checkup about the middle of October showed that numerous fish were still remaining in the same section of the brook in which the others had been taken. When legal fishing opened again last May fishermen were asked to be on the lookout for the marked fish. On the first morning around 10 fish were taken. These had passed the winter and the spring, with its freshets, in the immediate vicinity of the place in which they had been liberated. It would seem that the particular strain of rainbows used, revealed a tendency to "stay put" a little more pronounced than ordinary.

In conclusion, it does not seem that hatchery life will have much evil effect on the gallant nature of trout . . . provided they are given proper food, care, and a reasonably natural environment. The liberation experiments proved that rainbow and brook trout, reared by thoughtful methods, can take admirable care of themselves when placed on their own resources. Both species, despite enforced civilization, lived up to the sporting standards of their race in every respect. It is hardly a matter of argument to contend that fishing in civilized sections is utterly dependent upon the hatcheries—and therefore it is up to the hatcheries to see to it that the trout produced are worthy of the name. When trout that look like real trout are put out in trout waters for trout fishermen to catch, I firmly believe they will act like trout, which sums up the whole matter in few words.

Red Fishermen

THE time is the Year of Our Lord 1640, the scene, one of the low-lying shores of the lordly Susquehanna near the present town of Selinsgrove, in Snyder County. Like bears attracted to a bee tree gorged with wild honey, the Indian tribes of Central Pennsylvania had converged on the big river. It was spring, and the vast run of shad and herring was under way. Now, indeed, had come one of those periods of bounty for the red men, and the Susquehanna was the medium through which they would grasp their opportunity.

In preparation for the fish harvest, huge V-shaped pens had been constructed in the river. The signal for the drives about to occur came as a glistening horde of great fish, many of the shad ten pounds or more in weight, surged through shallow and riffle on their annual journey to spawning beds far upstream. In the drives, every able brave, squaw, Indian boy and girl participated. To the accompaniment of shouts and beating the water with sticks and clubs, the red fishermen staged their greatest fish take of the year. Into those crude, V-shaped pens were driven thousands of shad and herring, and their escape was then shut off

by crude hempen nets stretched across the tips of the V. The traps, literally boiling with fish, were to furnish food in abundance for the tribe during weeks to come. Not all of the trapped shad and herring would be killed immediately. Instead, as need prompted, the fish would be taken from the pens.

In picturing this strange primitive scene of Pennsylvania yesterdays, one is given pause by its startling contrast with the modern Susquehanna. As the red man knew it, it was unspoiled by that greatest enemy to fish life today, pollution. It was, as nature intended it to be, one of the most magnificent streams in America. No barriers existed to shad and herring as they annually swarmed toward the headwaters in answer to the spawning urge. But, after all, this sketch is historical, and, regrettable though it is, we must strain to visualize the pure, unspoiled beauty of a primitive fishing stream in Pennsylvania.

Wrote John Ogelby, concerning the fishing methods of the New England Indians, methods probably equally well known to the tribes of Pennsylvania:

"In the trade of fishing they are very

expert, being experienced in all baits for different kinds of fishes * * *. Since the English came, they are furnished with English hooks and lines, for before they made the latter of hemp, being more curiously wrought and of stronger material than ours and hooked with bone hooks * * *. They make likewise very strong sturgeon nets, with which they catch sturgeon of twelve feet or more in length. Their cordage is so even, soft and smooth that it looks more like silk than hemp."

And according to another early writer:

"The Indians always carry hooks and small harpoons with them whenever they are on a hunting party; but at certain seasons of the year they go out purposely to fish, either alone or in parties. They make use of the neat and light canoes made of birch bark * * * and venture with them into spacious rivers."

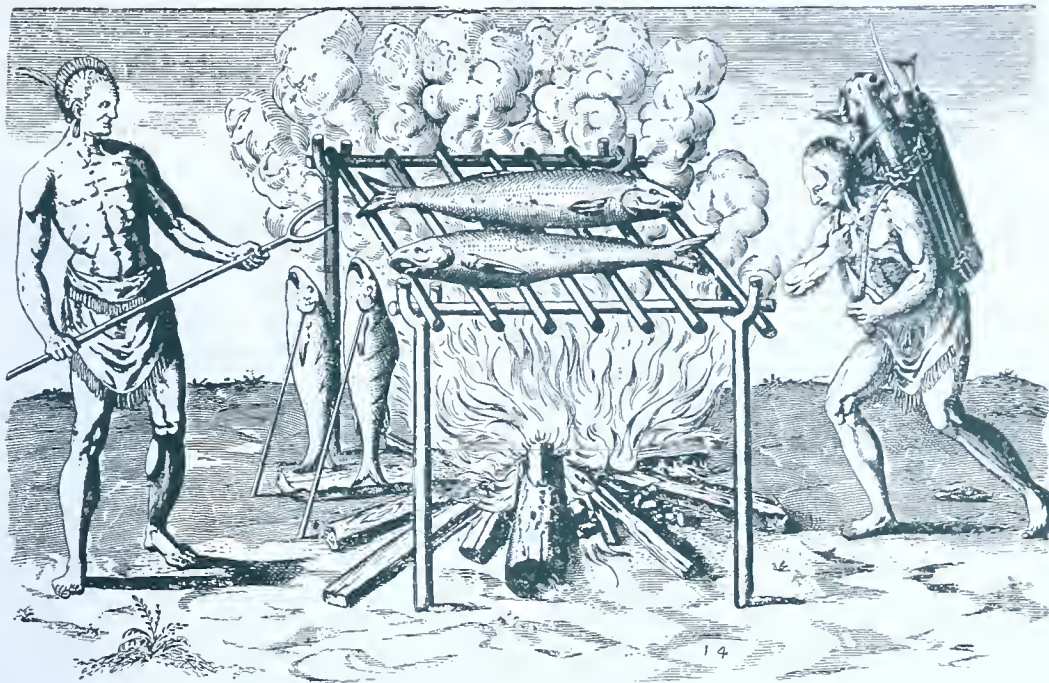
To Pennsylvania's first fishermen, the red men, catching fish was more than an art. It was a major source of livelihood, for he relied upon the water courses in his quest for food. Evidence is not lacking to confirm this fact. Preserved in the charcoal of fires that had once burned in Indian villages, whether they were located on the shore of some great waterway or miles away from it, were found many bones, and predominating were the bones of fishes. Then, of course, the supply of fish was so vast that incursions of the Indian, no matter how heavy, had little appreciable effect.

An early historian, commenting on the great migrations of shad, herring and sturgeon in the Susquehanna and Delaware Rivers, observed that "so immense were the multitudes of these fish that the still waters seemed to fill with eddies while the shallows were beaten into foam by them as they struggled to reach their spawning grounds." In the colder streams of mountain and lowland were charr or brook trout in abundance, while smaller streams, tributary to the great rivers, abounded in suckers, pickerel, catfish, and other native species. Here was a mammoth source of food supply, and to the red man, dependent as he was upon the crop of fish and game for existence, it constituted a vital necessity.

There is reason to believe, from evidence garnered in the charcoal from Indian fires, that fish of that era were larger than those caught today. Skeletons of suckers and catfish of more than double the present day size were unearthed. Brook trout skeletons, indicating that when in the flesh the fish must have weighed from two to four pounds, were discovered, while instances of shad skeletons from fish weighing presumably twelve pounds in the flesh were found. Without doubt, this greater size is to be attributed to the vast supply of forage present in the waters three hundred years ago.

How did the Indian fish? Before considering the implements then used in taking fish, one fact should be emphasized. Food was an elemental consideration and harvesting of the fish crop was a factor that might easily determine the difference between food abundance or hunger for a tribe. Today





sport in fishing presents a strong contrast to the red man's system of fishing for food. In pursuit of fish, the Indians used weirs and traps, seines, gill nets and scoop nets, spears, gigs, bows and arrows, hand, pole, and set lines. Their implements for fishing were skilfully made, and not only the men, but the squaws and children participated in fishing. The children relied chiefly on bows and arrows in taking fish, and were exceptionally adept in their use.

In fashioning gigs, the red men must have spent a great deal of time. Relics found along the Susquehanna and Delaware are in many instances fashioned exquisitely and with painstaking care. Jasper and quartz were apparently favored as material, and these spears or gigs were used in the taking of great fish such as the sturgeon. Hooks and lines were made with equal care. Skilfully woven hemp lines and hooks made from stone, bone or bird claws were used. Dipsies used with hand and pole lines were also artistically made, the most elaborate being fashioned of hematite and shaped somewhat like a common plumb bob. It was said that many of the early colonists used these Indian fishing devices in preference to those brought from abroad.

Hook and line fishing, as indulged in by the red man, is quaintly described by Harriot, who wrote concerning Indian angling methods in 1585.

"They have likewise a notable way to catche fishe in their Rivers, for whereas they lacke both yron and steele, they fasten unto their Reedes or longe Rodds the hollow taylor of a certain fish like to a sea crabb, in steede of a poynte, wherewith by nighte or day they stricke fishes and take them off into their boates. They also know how to use the prickles of other fishes. They also make weares, with settinge opp reeds or twigs in the water, which they soe plant one with another that they growe still narrower and narrower, as appeareth by this figure. Ther was never seen among us soe cunning a way to take fish withall, whereof sondrie sorts as they founde in their rivers unlike unto ours, which are also of a very good taste. Doubtless yt is a pleasant sighte to see the people, sometymes wadinge, and goinge sometymes sailinge in those Rivers, which are shallowe and not deepe, free from

all care of heaping opp Riches for their posterite, content with their state, and living frendlye together of those things which God of his bountye hath given unto them, yet without giving Hym any thankes according to His deserte. So savage is this people and deprived of the true knowledge of God. For they have none other than is mentioned before in this worke."

Harriot also commented on methods employed by the red men in cooking fish.

"After they have taken store of fishe," he wrote, "they gett them unto a place fitt to dress yt. Ther they sticke upp in the grownde 4 stakes in a square roome and lay 4 potes (poles) upon them and others over thwart the same, the like unto an hurdle of sufficient heighte, and laying their fishe upon this hurdle, they make fyre underneathe to broile the same, not after the manner of the people of Florida, which do but schorte (scorch) and harden their meate in the smoke only to Reserve the same during all the winter. For this people, reservinge nothing for store, thei do broile and spend away all att once, and when they have further need they roste or seethe fresh, as we shall see hereafter. And when as the hurdle can not holde all the fishes, they hange the Reste by the fyres on sticks set upp in the grounds against the fyres, and when they finishe the reste of their cookerye. They take good heede that they bee not burnt. When the first are broyled they lay others on that weare newlye broughte, continuing the dressinge of their meate in this sorte (manner) until they thincke they have sufficient."

During the colonization period, when the tide of settlement passed beyond the Alleghenies, Indian fishermen of friendly tribes plied an active trade of bartering fish with the settlers. Great abundance of fish in Pennsylvania waters continued for more than a century after most of the tribes had moved toward the west, and in fishing the colonists undoubtedly used and improved on devices that the red men had found so effective.

* * * * *

First of a series of articles by the Editor on the history of Fishing in Pennsylvania.

Prayer Answered

Fish Warden Dave Dahlgren of Philipsburg, comes along with a story concerning two sucker fishermen who were saved from heavy fines by prayer.

As Dahlgren and Game Protector Tom Mosier of Bellefonte were patrolling Spring Creek they found R. B. Leader and Thomas Butterbaugh of Altoona with exceptional catches of suckers. Leader had 19 and Butterbaugh, 21. In the eyes of the wardens, however, there were certain signs that indicated the fish might have been grappled.

Both fishermen claimed, however, that they were expert sucker fishermen, so Mosier suggested that they prove their skill by catching another in half an hour. After a moment of meditation, the challenge was accepted.

While they were seated, anxiously watching their rods, Butterbaugh resorted to prayer in aiding them to prove their skill and promptly landed another two-pound sucker.

CATCHES 28-INCH PIKE ON RAYSTOWN BRANCH

Heading the list of big wall-eyed pike reported from the Raystown Branch this season will probably be a 28-inch wall-eye weighing 6 pounds 12 ounces. It was one of six pike landed by Robert Browell of Hopewell in the Hopewell Dam. The smallest pike in the catch measured 20 inches in length, according to Special Warden Harry Moore of Hopewell.

A party of anglers from Jenners, Somerset County, also scored a notable catch on the Branch. William McGuire, Victor Lambert, Charles Miller, Robert Beatty, and Harold Durst caught 72 rock bass, 7 to 10 inches in length, and 9 black bass, 10½ to 15 inches, in one day's fishing.

Helen Brumbaugh, of Altoona, an ardent feminine disciple of Izaak Walton, landed a 19-inch smallmouth bass at Cypher Beach on the Branch. Three smallmouths, 14, 16 and 18 inches in length, were caught in this stream by John Williams of Hopewell.

MONTGOMERY SPORTSMEN TO PLANT STREAM COVER

More stream cover on fishing streams means better fishing, and the Montgomery County Fish, Game and Forestry Association is determined to provide it. At the October meeting of the Association, it was decided to set aside funds for the purchase of 25,000 seedling trees. These trees will be planted along the shorelines of Montgomery County streams as part of a relief project on stream improvement.

The Montgomery group are ardent advocates of introduction of more cover, not only as a method for betterment of fishing conditions but as an aid to better hunting. In the absence of the president, Judge Harold Knight, vice-president J. Hansell French presided at the meeting. Recently Mr. French, who is Secretary of Agriculture, urged state-wide willow-planting in improving state fishing streams.

Uncle Jim on Brown Trout

By Charles Lose



A FINE SPECIMEN OF UNCLE JIM'S "PET HATE," THE BROWN TROUT. THIS FOUR POUNDER WAS CAUGHT IN TIONESTA CREEK IN 1935 BY DON FINLEY, WARREN ANGLER. DON WAS USING HOME TIED FLIES

THE big brown trout, which had taken my black gnat some ten minutes before, was still giving me plenty of work. Its tactics at first had been to leap from the water again and again as a bass does when hooked, but these performances had given way to strong rushes back and forth across the pool. In some of these rushes it had compelled me to follow it where the water was almost beyond my depth.

Uncle Jim, who had stopped spinning his minnow in the riffle above me to come down and watch the contest, suggested after one of the fish's most desperate struggles that I cut the line and let the "darned thing" go.

Uncle Jim's advice on fishing matters is uniformly sound when he is serious, but just then I was little inclined to pay much heed to it. The fish was evidently well hooked and unless some part of my tackle gave way could sooner or later be landed. Suddenly, after one last wild rush in which it made another leap, the fish gave up and permitted me to tow it easily to the shore. It had resisted so fiercely for a time that I was surprised and somewhat disappointed at its complete surrender in the end. It seemed to me to lack staying qualities as a fighter.

Uncle Jim netted the trout and carried it some distance back on the beach. Here

I unhooked my fly which was still firmly fastened in the fleshy part of the fish's big mouth. We estimated that it was twenty inches in length and would weigh about three pounds. Uncle Jim killed the fish by two or three sharp raps on the back of its head with a long narrow stone. Then he took out a large knife from his pocket and proceeded to clean the trout with neatness and dispatch.

While he was scaling the fish I asked him what his objections were to brown trout. Holding up for inspection the broad blade of his knife which was half covered with small yellow scales, he said laconically, "This is one," and then added "and it is likely that we shall find another one inside this trout." Uncle Jim's guess, if it were a guess, proved to be correct. In the packed stomach of the large fish we found a seven-inch speckled trout.

When we were eating our noon-day lunch and resting in the shade of a large hemlock that stood close to a cold mountain rill, I made a further attempt to discover Uncle Jim's reasons for so greatly disliking brown trout. I knew, of course, that for more than half a century he had been catching trout in the big stream on which we were spending the day. It was his favorite trout stream and in its length of

nearly sixty miles, as well as in its more than a score of large tributaries, there was hardly a pool or riffle that he had not fished again and again. He knew these streams intimately when the mountains among which they run were covered with virgin forests and when the speckled trout reigned supreme. It was when he was nearly sixty years of age that the brown trout had been introduced into the stream. But Uncle Jim was a keen observer and he had fished long enough after the introduction of this new species of trout to understand fully its effects upon the fishing. He would favor the speckled trout of course, they were his first love. Nevertheless, he would be fair and in his talk on this subject I might learn something more of the fishing in those early days when streams ran clear and unpolluted.

Uncle Jim replied in the affirmative when I asked him whether or not he thought that the brown trout would eventually take full possession of the streams he had fished so long. He went on to say that he would not likely live to see the unhappy day, but that he had already seen a rapid increase in the number of brown trout and a corresponding decrease in the number of speckled trout. Then, as if to present an-

other ocular reason for his regret at the changing conditions, Uncle Jim took from my basket the big brown trout and from his own basket a speckled trout of sixteen inches, and laid the two side by side on a patch of damp green moss. Beside the beautifully colored and perfectly shaped speckled trout the brown trout looked like a rough work horse beside a thoroughbred. Through the opening that Uncle Jim had made when he cleaned his speckled trout I could see the pink flesh that would be firm and sweet when the white flesh of the other fish would be soft and flavorless. I was beginning to understand something of Uncle Jim's bitterness at the growing supremacy of the brown trout.

"That sixteen-inch trout," Uncle Jim said, "is the largest speckled trout I have seen in three years. I thought there were no more of that size left in this creek. Yet, I once in a single day caught three speckled trout in this stream, each of which weighed a little more than three pounds. On another day forty years ago I caught, between sunrise and sunset, nearly a hundred trout many of which were more than a foot in length. At the Cape Mill on that day I led out in succession five trout that were each more than fifteen inches in length.

"I can remember it was so cold that morning that when I crossed a clover patch between the road and the creek the clover stems were so frozen that they snapped off when I stepped on them. But the sun came out bright and warm about nine o'clock and from that time on the trout bit and hung on like bull dogs. In those days I twisted my lines out of long white hairs from a horse's tail and used a long cane rod without a reel. There were no minnow nets and I killed my minnows by cracking with a stone the flat stone under which I had driven them.

"That day I carried my trout in a basket made from a roll of bark, peeled from the trunk of a butternut tree fifteen inches in diameter. I sewed up the basket with long tough strips of bark from the leather wood and, I made the bottom and the shoulder strap out of the same material. When I reached Snell's, where I was to spend the night, my butternut basket with its heavy load of trout had worn the skin off my hip. Old Henry Snell took the trout out of the basket and laid them side by side on a sixteen foot board and they covered it from end to end.

"I fished five miles that day without catching sight of another fisherman. I tell you what, young man, that was a hard day's work. I pounded stones for minnows until my fingers were sore. I waded the stream across and back more than a dozen times, and often to fish a spot where I knew there were trout I stood in swift water up to my hips. Still, if once more in my life I could have such a day's fishing, I would willingly give a town house and lot for it.

"However, that was a day's fishing that no man will ever have with these crazy brown trout, which bite best at night or after a heavy rain when the stream is beginning to rise and become muddy. When the water is clear enough for you to see a spinning minnow six inches under the surface, you may fish in daytime down through a riffle that is full of brown trout and never get a strike. Go there in the middle of the night, when honest fishermen



IRA WOOD, VETERAN ANGLER, NEARS THE FINISH OF HIS BATTLE WITH A 15½-INCH BROOK TROUT IN FAMOUS KETTLE CREEK

ought to be in bed, and you will be kept busy hooking and hauling out these same fish. I am too old to learn such fishing, even if I cared to learn it. I want to fish in the daytime and in water in which I can see the trout come up to take the minnows. To see the fish strike is a large part of my sport. Then I dislike a trout that only snaps at the minnow. A speckled trout will take a minnow near the surface, carry it to the bottom, and hold fast until the fisherman is ready to hook it. I can easily tell when it is a brown trout that has struck my minnow and at such times I would be entirely willing to go on and leave the fish for the next fellow that comes along. I have occasionally caught some brown trout but only when I couldn't very well get out of it.

"I was fishing the creek some miles above here one day when a heavy morning thunderstorm somewhere near the head waters of the creek started the stream to rising fast. When the water was so muddy I couldn't see my bait I was ready to quit. About that time I reached the Cold Watch where a stiff riffle runs into a deep pool that is full of brown trout. Just where the riffle enters the pool a fish took my minnow with a bang. I couldn't see the fish in the muddy water but I suspected that it was a brown trout. I hooked it and after a little fight landed a brown trout of eighteen inches. In an hour and a half I had caught a dozen in the same place. They were all big brown trout and they more than filled my basket. After I had cleaned them I piled them up on the beach and looked at them. I would have been willing to trade the whole lot for two or three twelve inch speckled trout.

"I never fished with flies myself, but in those old days I knew several fly fishermen along the stream for whose fishing I had great respect. With a minnow I usually caught heavier trout than they caught, but

I seldom caught as many as they did. George Wood was one of these fishermen. When I reached the Mountain Hole about four o'clock on a June afternoon I was pretty sure to see George in the head of Potter's Dam a quarter of a mile below me. When I fished down to the place, I most always sat down to talk with him for a few minutes. A number of big, cold springs made the head of the dam a favorite place for trout in mid-summer and George often filled his basket before leaving the spot. He used a long, limber rod with which he cast two flies that would light on the water like dry feathers. The stream here is sixty feet wide but George easily covered all of it from his position about the middle. Some of the trout which he hooked were big ones, but they seldom got away from him. To watch him cast his flies, hook, and land a trout always gave me a lot of pleasure. It was to watch a real expert.

"Old Tom Blair was another good fly fisherman. He owned a little saw mill at the Cove which, in trout season, he always shut down about five o'clock when the shadow of Cove Mountain began to creep across the head of his mill dam. He had a rod whose butt was ash, middle piece, hickory, and tip, whalebone. He had wound it so that it was all one piece. With it he could throw his home-made flies just where he wanted them to go. His reel was a big wooden spool to which he had fastened a wooden handle. What the equipment lacked, however, the trout supplied by their numbers and their eagerness. Through the fishing season the old rod always hung in the mill. When Tom thought the hour had come he would shut down the gates, grab the rod, and hurry away to the head of the dam. He was a brusque old chap and was sometimes a little short with me when I stopped to see his catch, particularly if I had some better trout than he had caught.

But he was some fly fisherman and the head of his dam gave him such trout fishing as will never be seen again in this stream. In his time he must have caught thousands of trout and if he had been anything of a talker he could have told some great fish stories. Where old Tom used to fish brown trout now feed, I am told, at two o'clock in the morning. I wish we could get old Tom's opinion of this sort of business.

"Frank Herdic was, in my estimation, the best fly fisherman I ever saw. Sometimes he and I were in the same fishing party and on these trips we occasionally fished together. A minnow fisherman and a fly fisherman do not interfere with each other very much if both are careful. Sometimes I raised a trout that would not take my minnow and Frank would come along and catch it. He was full of fun and the life of a fishing party, but on the stream he was a hard worker and would fish as many miles in a day as I could cover. He used expensive tackle that was light but strong and he always fished with small flies. There are some very swift rough riffles in this Creek, in which the biggest speckled trout liked to lie in wait for flies. To hook a big trout on a small fly in such a place and finally land it required a real master at the business and Frank was one of the very few men I have known that could do the thing. When he hooked a big trout he would whinny like a horse. When I heard his whinny ring out between the mountains I always hurried to him to see the fun. He was so active and quick in following the movements of a hooked fish and his rod was so light and limber that, unless the chances were not greatly against him, he was pretty sure to win the fight. I never met another man that was his equal at fly fishing or got such genuine pleasure out of the sport. If he were still living I wonder what he would think of fishing for trout with number six and eight flies, or what he would say to the man who, at midnight, sits on a camp stool and dangles such flies in the deep waters of a pool for brown trout. Frank and old Tom and George are gone, but if their disembodied spirits are permitted to hover over the scenes they were so fond of, I am sure they are very much puzzled at the absence of fishermen in the daytime and the great activity along the stream in the middle of the night. Your hooking of that big brown trout this morning was something of an accident. It is possible that the trout was blind.

"Hunting pheasants, or what you call ruffed grouse, was in former years my favorite fall pastime. These hunting trips often took me back into the mountains and along the trout streams where I spent nearly as much time in watching the trout as in looking for game. In October I have stood on the bank far up the stream for half an hour at a time and watched five or six pairs of big speckled trout playing over their spawning beds in the shallow water at the lower end of some broad pool. They made an interesting sight for me. In those days all of the tributaries seemed to be crowded in the fall with trout intent on reproducing their kind. Sometimes I would hunt up a worm or a bug and throw it out into the pool where the water would



EARL MILLER, MT. PLEASANT,
WITH A 6¼ POUND BROWNIE
FROM LAUREL HILL CREEK,
SOMERSET COUNTY

fairly boil with the trout hurrying to reach it first. This stream and all of its tributaries have many spring branches and little brooks where small trout may live and flourish in safety. Each year these little trout added several inches to their length and then dropped down into water that was a little deeper and wider. Finally when they were plump ten and twelve inch trout they emerged into the main stream and became "big creek" trout, ready to offer the angler some real sport. Speckled trout were so plentiful in all of the streams in those days and conditions were so favorable for them that I never dreamed that the day would come when they would be fighting a losing fight for mere existence.

"For three or four years after brown trout were introduced I thought it likely that they were going to confine themselves to the main stream and a few of its largest tributaries, where the water is always a few degrees warmer than it is in the mountain brooks, I consoled myself somewhat with the thought that these cold mountain streams would be left to the speckled trout and that there would consequently always be a good supply of this beautiful gamey fish. I am now afraid that my wish was only the father of my thought, for this spring men have caught brown trout in some of the coldest runs in this watershed. I believe that you will some day fish this stream and at night find among your fish not a single speckled trout."

EDITOR'S NOTE: In presenting this vivid account of trout fishing during the latter part of the 19th century, the ANGLER desires to emphasize one fact, i. e. a deserved popularity of the brownies with our fisher-

men today. Many Pennsylvania streams now afford splendid sport for modern anglers simply because the fighting browns have taken hold in them. Hardy fish, these trout are in the spotlight with our trout fishermen. The Old Timer's viewpoint concerning them, however, is most interestingly presented by "Uncle Jim."

CRAWFORD COUNTY SPORTSMEN PUBLISH "SPORTSMAN'S NEWS"

A very interesting publication, *The Sportsman's News*, is issued each month by the Crawford County Branch of the Sportsman's Council, affiliated with Division F, Pa. Federation of Sportsmen. This publication contains news of sportsmen's organizations and individual sportsmen's experiences in Crawford County.

K. P. Williams edits the publication and Wallace Dean and L. L. Leberman are advertising managers. The subscription price is fifty cents a year, and contributions of news from any Crawford County sportsmen are welcomed.

HEALTH SECRETARY LAUDS WORK OF FISH WARDEN

In a recent letter to Commissioner Deibler, Secretary of Health Edith MacBride Dexter complimented Fish Warden Myron Shoemaker, of Laceyville, for his fine work in connection with reported pollution of the Tioga and Chemung Rivers. Wrote Dr. Dexter:

"Will you please convey to Fish Warden Shoemaker our thanks for the prompt and capable manner in which he handled the field work following the recent telegram from Mr. Adams, Commissioner of Conservation of New York State, reporting alleged gross pollution of the Tioga and Chemung Rivers in New York said to have been caused by the tannery at Elkland, Pa."

Investigation showed the charge not to have been well founded.

OCTOBER FISHING ON ALLEGHENY

Warden R. C. Bailey of Youngsville reports that Big Bend Eddy on the Allegheny River was one of the most popular fishing spots in northwestern Pennsylvania during October. Some fine catches of bass were made on plugs, minnows and helgramites. Listed among the most successful of the anglers trying this stretch of water were Lynn Shipman of Kinzua and A. W. Richards of Warren.

A 20-inch smallmouth bass weighing five pounds was reported taken from Fuelhart Eddy in September by E. C. Laycock of Millvale.

HUNTINGDON SPORTSMEN HOLD FIELD DAY MEET

Demonstration fly casting, plug casting, trap-shooting, match shooting for turkeys, pistol matches and other events featured the first annual field meet of the Huntingdon County Fish, Game and Forestry Association held at the Fair Grounds near Huntingdon in October. A well-rounded program proved one of the most enjoyable occasions in Central Pennsylvania sportsmen circles.

Following the meet in the afternoon, over



AT HUNTINGDON RALLY. FROM LEFT TO RIGHT: FRANK A. MYERS, DIVISION "D" GAME SUPERVISOR; HON. KENNETH A. REID, MEMBERS, BOARD OF FISH COMMISSIONERS; HON. WILLIAM G. FLUKE, MEMBER, BOARD OF GAME COMMISSIONERS; ALEX SWEIGART, EDITOR OF THE "ANGLER"; WILLIAM LANE, REFUGE KEEPER, HUNTINGDON COUNTY; C. V. LONG, FISH WARDEN, JUNIATA COUNTY; S. H. PRICE, ACTING GAME PROTECTOR, HUNTINGDON COUNTY; HAYES T. ENGLERT, DIVISION "E" GAME PROTECTOR; AND THOMAS MOSIER, GAME PROTECTOR, CENTRE COUNTY

300 members of the Association heard addresses by Hon. William G. Fluke, member of the Board of Game Commissioners, Frank Myers, District Game Supervisor, Division D, Hayes Englert, crack pistol shot of the Game Commission, Hon. Warren B. Simpson, Huntingdon, president of the association, and Sergeant Herman P. Rousch, of the Lewistown Highway Patrol. Other guests at the meet in the afternoon were Hon. Kenneth A. Reid, member of the Board of Fish Commissioners, game protectors Sam Price, Huntingdon County, Tom Mosier, Centre County, Fish Warden Charles Long, Juniata, game refuge keeper William Lane, Huntingdon County, and Alex P. Sweigart, Editor of PENNSYLVANIA ANGLER.

A fine exhibition of fly and bait casting by Ken Reid was one of the features of the meet. In addition to endorsing use of light tackle in taking game fish, he stressed the vital need of pollution control as an objective that must be attained to reach the goal of better fishing in Pennsylvania.

Mr. J. C. Ingram, of State College, entertained the sportsmen with some novelty shooting feats. He gave a demonstration of the explosive quality of hollow point high speed shells and shot with all calibres of guns.

Another interesting feature on the afternoon program was the pistol match, participated in by Messrs. Englert, Lane, Myers, Long and Mosier. The participants had the reputation beforehand of being good marksmen, and they made good this reputation again on Saturday. Mr. Englert has been a state champion marksman for the past four years, and on Saturday had a record of 283 hits out of a possible 300 tries, divided

as follows: 97 slow fire, 96 at 20-second fire and 90 for 10-second rapid-firing.

A booth showing game feeding devices was quite an attraction for the sportsmen, and many favorable comments were heard. An added attraction was the display of the crow feet turned in by the members of the county association participating in the Crow Killing contest. The feet were in a large glass jar and the sportsmen received much enjoyment out of guessing the number of feet in the jar. Chester Hall guessed 1001 feet, being the nearest to the number of feet in the jar. A count revealed that 1006 feet were in the jar. The contest committee announced that 1035 crows had been killed and registered with the committee. Upwards of 400 crows were killed by members of the association which were not officially recorded. Prizes for the Crow Killing Contest were awarded in the evening to the following men: First prize, Earl Ayres, of Manor Hill, a 12-gauge Remington pump shotgun, valued at \$47.50; second prize, Harry Moyer, of Hesston, R. D., a 22-calibre pump action Stevens rifle, valued at \$25; third prize, Walter Moyer, of Hesston, R. D., a 22-calibre pump action Winchester rifle, valued at \$25. The prize winners made affidavit to the fact that they had killed the number of crows with which they were credited.

MIFFLIN SPORTSMEN HOLD FIELD MEET

One of the most successful meetings of the Kishacoquillas Valley Sportsmen's Association was held at the Y. M. C. A. camp near McVeytown in October.

The activities started early in the after-

noon with the activities consisting mostly of trap-shooting and field trials for both bird and rabbit dogs. The trap-shooting was in charge of W. M. Sweigart, who had two traps erected and both were kept busy until dark. High scores were held by Ed Glazier, of Lewistown, Tom Morton, of Harrisburg, and Dr. H. E. Miller, of Belleville. Mr. Glazier broke ninety-four out of a possible one hundred, and was closely followed by both Mr. Morton and Dr. Miller. Sportsmen totaling approximately one hundred gathered for the activities from surrounding counties and all parts of Mifflin County.

In the evening a roast beef dinner was served at the camp by a committee headed by Buck Sweigart of McVeytown. The menu consisted of roast beef, mashed potatoes, beans, celery, bread, butter, coffee, and pumpkin pie. Fifty persons remained for the meal. Dinner music was furnished by an orchestra from McVeytown.

EUROPEAN POLLUTION NOT SO BAD AS PICTURED

That well-known argument of pollutionists that the streams of Europe are more vilely polluted than those in Pennsylvania is apparently knocked into a cocked hat by the following first-hand account of pollution conditions in the Old World submitted by Lee D. Hemingway of Pittsburgh. Recently he wrote to Hon. Kenneth A. Reid, Board Member:

"I have been very much interested in some articles that have been appearing in PENNSYLVANIA ANGLER covering the subject of stream pollution.

"Ever since I was a student of law at Cornell, I have been interested in the subject of riparian rights of ownership. I was brought up on the principles of the common law which holds in every place except Pennsylvania, protecting the rights of owners in their benefits and enjoyment of streams in their natural state. This is the old common law that comes to us from England.

"I made a particular study of stream conditions throughout England and Europe a couple of years ago and it was amazing and almost unbelievable the conditions I found there. In the most populous and congested districts the streams were found to be clear and clean and stocked for the use of the people, except in certain instances where fishing rights are preserved. The fishing is good in all these waters.

"The reservation of fishing rights does not in any way interfere with the next owner below and therefore, is strictly in compliance with the principles maintained by the old common law.

"The Rhone River, Lake Luzerne, the Rhine, the Seine and Thames are all fishing streams. The latter, the Thames, is enjoyed by folks for their outings and camping trips and you will even find considerable wild life a few miles above London and from there to Oxford where it becomes Isis.

"The King's swans are given traditional privileges. Then they have many other birds of the woodcock and snipe variety and innumerable birds of the coot family. (Woodcock are hardly waterfowl.)

"I was so amazed to see men sitting on the banks of the Seine with a long rod, within a stone's throw of Notre Dame in

the heart of Paris, enjoying an afternoon's fishing that I took a moving picture of this remarkable sight.

"There is a very interesting variety of fish with which I am not familiar abounding in large numbers in the waters under the bridge at Geneva and in the city of Lucerne, right in the midst of heavy traffic, living happily in schools. You will find the inhabitants of this latter place early on Sunday morning angling for the sport and delicacy for the table.

"My German being very poor, I quite amused a group of three old fishermen when I enquired what fish they were after. I asked them the names of the fish, using the German name "heist." One of them, somewhat of a wit, replied "Henry" and his companions became convulsed and so did I. Then I changed my idiom and they gave me their answer but I have forgotten it long since.

"I suppose the agencies that are interested are trying to do what they can in Pennsylvania and I am glad you are agitating the set-up."

WILLIAMSBURG ANGLERS SCORE ON RAYSTOWN

Fine autumn catches of bass and wall-eyed pike have been made by Williamsburg fishermen on the famous Raystown Branch of the Juniata River, according to Warden Link Lender of Bellwood.

George Dewey of Williamsburg landed a smallmouth bass measuring 19½ inches in length and weighing 4 pounds 5 ounces. He also caught two pike, one 23½ inches weighing 3½ pounds, the other tipping the scales at 2½ pounds.

Six bass, ranging in weight from two to three pounds, were taken by John Weaver, Williamsburg. A 20½ inch bass weighing 4 pounds 8 ounces was caught on the Branch by Del Stevens of Altoona.

MONTGOMERY SPORTSMEN PLAN STREAM PROJECTS

Fishing as well as flood control will be benefitted by an intensive stream improvement campaign in Montgomery county to be sponsored by the newly organized Federation of Sportsmen's Clubs in the county. One of the first projects to be started recently was that on the Upper Perkiomen Creek in Marlborough township. The work contemplated will be undertaken with Works Progress Administration aid. Repair of the Brey and Kratz dams is calculated to aid in the flood control of the Upper Perkiomen.

In addition to this project, the Federation at a recent meeting approved four other projects calculated to better fishing and submitted by a special fish committee which surveyed county streams.

Projects for which PWA funds will be sought include repairing the Arcola, High, Schwenkville and Salford dams on the Perkiomen Creek; building deflectors and removing dirt from Mingo Creek; rebuilding Bergey's, Gerhart's and Ches-Norr dams on Branch Creek; stream improvement on Mill Creek; building fishway and deflectors on Manatawney Creek at Pottstown and deflectors on Swamp Creek, and preparation of propagation ponds on the property of F. H. Lersch, Spring Mount, for a county fish nursery. Represented at the meeting were the

Montgomery County Fish, Game and Forestry Association, the Perkiomen Fish and Game Association of Schwenkville, Pottstown Rod and Gun Club, Royersford Fishing and Hunting Association, Lower Merion Rod and Gun Club, Gilbertsville Rod and Gun Club and Huntingdon Valley Fish and Game Association.

DISTRIBUTE MANY SPECIES OF FISH IN OCTOBER

A total of 1,668,164 fish of various species and frogs were distributed to streams throughout the State by the Board of Fish Commissioners during October. Included in the distribution were 246,210 catfish, 2 to 10 inches in length. 745,720 sunfish, 1 to 8 inches; 501,900 frogs, embryo stage; 15,185 minnows, 2 to 7 inches; 116,870 brook trout, 6 to 8 inches; 2,800 brown trout, 8-inch average; 21,111 black bass, 2 to 10 inches; 100 calico bass, 5-inch average; 2,648 suckers, 3 to 10 inches; 14,195 yellow perch, 5 to 8 inches; and 1,425 pickerel, 12-inch average.

Adams—minnows, Chambersburg Water Company Reservoir on Birch Run; catfish, Kreagys Lake, Hokes Lake, Conewago Creek, South Branch Conewago Creek; sunfish, Kreagys Lake, Hokes Lake, Conewago Creek, South Branch Conewago Creek; frogs, Conewago Creek, South Branch Conewago Creek, Hokes Lake, Kreagys Lake; black bass, Bermudian Creek, Conewago Creek.

Allegheny—catfish, Clinton Lake, North Park Lake, Allegheny River, Sturgeon Pond, Scott Pond No. 1, Scott Pond No. 2, Scott Pond No. 3; sunfish, North Park Lake, Allegheny River, Sturgeon Pond, Scott Pond No. 1, Scott Pond No. 2, Scott Pond No. 3, Clinton Lake; frogs, North Park Lake, Allegheny River, Sturgeon Pond, Scott Pond No. 1, Scott Pond No. 2, Scott Pond No. 3; black bass, Allegheny River.

Armstrong—catfish, Allegheny River, Buffalo Creek; sunfish, Allegheny River, Buffalo Creek; frogs, Allegheny River, Buffalo Creek.

Beaver—brook trout, Brady Run; black bass, North Fork Little Beaver River, Little Beaver River.

Bedford—catfish, Woodbury Dam, Lake Gordon, Thos. W. Koon Lake, Raystown Branch of Juniata River, Brush Creek, Bobs Creek, Dunnings Creek; sunfish, Woodbury Dam, Lake Gordon, Thos. W. Koon Lake, Raystown Branch of Juniata River, Brush Creek, Bobs Creek, Dunnings Creek; frogs, Woodbury Dam, Gordon Lake, Thos. W. Koon Lake, Raystown Branch of Juniata River, Brush Creek, Bobs Creek, Dunnings Creek; brook trout, Cove Creek, Shermans Valley Creek, Yountz Creek, Beaver Creek, Potter Creek, Three Spring Creek; black bass, Juniata River, Wills Creek.

Berks—catfish, Ontelaunce Lake on Maiden Creek, Wyomissing Creek, Oley Furnace Creek, Maiden Creek, Rieser's Dam on Seidel's Run, Mill Creek, Longs Pond on Lehigh Creek, Crosskill Creek, Little Swatara Creek, Manatawney Creek, Boyertown Water Company Dam on Popodicken Creek, Tulpehocken Creek, Sacony Creek; yellow perch, Ontelaunce Lake, Oley Furnace Creek; sunfish, Ontelaunce Lake, Oley Furnace Creek, Wyomissing Creek, Manatawney Creek, Boyertown Water Company Dam on Popodicken Creek, Tulpehocken



THREE WALL-EYED PIKE, LARGEST 5 POUNDS, CAUGHT BY SHERIFF LUTHER KNIFFEN, LUZERNE COUNTY, IN LAKE CAREY

Creek, Maiden Creek, Reiser's Dam on Seidel's Run, Mill Creek, Longs Pond on Lehigh Creek, Sacony Creek, Crosskill Creek, Little Swatara Creek; frogs, Oley Furnace, Wyomissing Creek, Sacony Creek, Crosskill Creek, Little Swatara Creek, Mill Creek, Reiser's Dam on Seidel's Run, Maiden Creek, Longs Pond on Maiden Creek; black bass, Tulpehocken Creek, Maiden Creek, Monocacy Creek, Manatawney Creek.

Blair—catfish, Stevens Dam, Brush Run, Raystown Branch of Juniata River, Williamsburg Dam on Frankstown Branch of Juniata River; sunfish, Stevens Dam, Brush Run, Raystown Branch of Juniata River, Williamsburg Dam on Frankstown Branch of Juniata River; frogs, Stevens Dam, Brush Run, Raystown Branch of Juniata River, Williamsburg Dam on Frankstown Branch of Juniata River; brook trout, Vanscoyoc Run, Bobs Creek, Blair Gap Run, Sandy Run, Sinking Creek; black bass, Williamsburg Dam on Frankstown Branch of Juniata River.

Bradford—catfish, Herricksville Rod and Gun Club Dam, Wesauking Lake, Mountain Lake, Sunfish Pond, Towanda Creek, Sugar Creek, Nephawin Lake, Susquehanna River, North Branch Susquehanna River, Moody Pond, Stowell Pond, Beaver Meadow Pond, Blakeslee Pond, Rockwell Pond, Cooks Pond; sunfish, Mountain Lake, Sunfish Pond, Wesauking Lake, Herricksville Rod and Gun Club Pond, Susquehanna River North Branch, Sugar Creek, Nephawin Lake; frogs, Wesauking Lake, Herricksville Rod and Gun Club Pond, Mountain Lake, Sunfish Pond, Nephawin Lake, Sugar Creek; brook trout, Seeley Creek, Schrader Creek,

South Creek; black bass, North Branch Susquehanna River, Sugar Creek.

Bucks—pickerel, Tohickon Creek; catfish, Lehigh Coal and Navigation Company Canal, Deep Run, Tinicum Creek, Perkasio Quarry Hole, Three Mile Run, Tohickon Creek, Neshaminy Creek, Little Neshaminy Creek, Brook Creek, Pidcock Creek, Delaware River, East Swamp Creek, Branch Creek; yellow perch, Lehigh Coal and Navigation Company Canal; sunfish, Neshaminy Creek, Little Neshaminy Creek, Lehigh Coal and Navigation Company Canal, Deep Run, Tinicum Creek, Perkasio Quarry Hole, Three Mile Run, Tohickon Creek, Brook Creek, Pidcock Creek, Delaware River, East Swamp Creek, Northeast Branch of Perkiomen Creek; frogs, Northeast Branch Perkiomen Creek, Pidcock Creek, Delaware River; black bass, Tohickon Creek, Swamp Creek, Northeast Branch of Perkiomen Creek, Neshaminy Creek, Little Neshaminy Creek.

Butler—catfish, Oneida Dam, Buffalo Creek, Boydstown Dam on Connoquenessing Creek, Thorn Run Dam, Wolf Creek, Glade Run, Yellow Creek, Harmony Junction Reservoir, Breakneck Creek, Buhl's Channel; sunfish, Oneida Dam, Buffalo Creek, Boydstown Dam on Connoquenessing Creek, Thorn Dam, Wolf Creek, Glade Run, Yellow Creek, Harmony Junction Reservoir, Breakneck Creek, Buhl's Channel; frogs, Oneida Dam, Buffalo Creek, Boydstown Dam on Connoquenessing Creek, Thorn Run Dam.

Cambria—catfish, Howe Run, Newborough Dam, Dooman Dam; sunfish, Howe Run, Newborough Dam, Dooman Dam; frogs, Howe Run, Newborough Dam, Dooman Dam; brook trout, Rouges Harbor Run, Benders' Run, South Fork Little Conemaugh River, East Branch of Hinkstown Run, Mudlick Creek, Big Laurel Run, Spring Run, North Branch of Blacklick Creek, Beaver Run Dam, North Branch Little Conemaugh River, Cedar Run, Duclos Run, Hinkstown Run.

Cameron—brook trout, Sterling Run, Upper Jerry Run, East Branch Hicks Run, Hicks Run, Mix Run, Lushbaugh Run, Brooks Run, Hunts Run.

Carbon—pickerel, Harmony Lake; catfish, Round Pond, Lake Harmony, Kittatiny Dam, Little Gap Ice Dam on Buckwa Creek, Pohopoco Creek, Lizard Creek, Mahoning Creek; sunfish, Lizard Creek, Pohopoco Creek, Round Pond, Harmony Lake, Mahoning Creek, Kittatiny Pond, Little Gap Ice Dam on Buckwa Creek; frogs, Round Pond, Lizard Creek, Pohopoco Creek; brook trout, Hayes Creek, Mauch Chunk Creek, Aquashicola Creek, Quakake Creek, Buckwa Creek, Hunter Creek, Pine Run.

Centre—suckers, Barkers Dam on Cold Stream Creek, Cold Stream, Bald Eagle Creek; yellow perch, Moshannon Lake, minnows, Moshannon Lake; pickerel, Moshannon Lake; catfish, Moshannon Lake, Cold Spring, Red Mill Dam on Sinking Creek, Rotes Mill Dam on Penns Creek, Bald Eagle Creek, Legion Dam on Cold Stream Creek, Beech Creek, Toe Hill Ore Hole; sunfish, Toe Hill Ore Hole, Moshannon Lake, Cold Stream Dam, Rotes Mill Dam on Penns Creek, Red Mill Dam on Sinking Creek, Bald Eagle Creek; frogs, Moshannon Lake, Bald Eagle Creek, Rotes Mill Dam on Penns Creek, Red Mill Dam on Sinking Creek, Cold Stream on Philips-

burg Dam; frogs, Moshannon Lake, brook trout, Little Moshannon Creek, Pine Creek, Penns Creek, Little Fishing Creek, Cold Stream, Little Sandy Run, South Fork, Beech Creek, Big Sandy Run, Six Mile Run, Sinking Creek, Spring Creek, Laurel Run, White Deer Creek, Spruce Creek, West Branch Big Run.

Chester—catfish, Brandywine Creek, West Branch Brandywine Creek, Mill Pond on Schuylkill Canal, French Creek, Shaw Lake on Highman Pond; sunfish, Brandywine Creek, West Branch Brandywine Creek, Mill Pond on Schuylkill Canal, French Creek, Shaw Lake on Highman Pond; frogs, Mill Pond on Schuylkill Canal, French Creek, West Branch Brandywine Creek, Brandywine Creek; brook trout, Two Log Run, White Clay Creek; black bass, French Creek, West Branch Brandywine Creek, East Branch Octoraro Creek.

Clarion—brook trout, Mill Creek, Canoe Creek, Pons Run; black bass, Red Bank Creek, Mill Creek, Piney Creek, Allegheny River.

Clearfield—catfish, Sabula Lake; sunfish Sabula Lake; frogs, Sabula Lake; black bass, Sandy Lick Creek, Little Clearfield Creek.

Clinton—suckers, Lick Run, Rattle Snake Run, Cammal Run, Chatham Run; catfish, Kettle Creek, Campbell Run, Chathams Run, Lick Run, Camel Run; sunfish, Lick Run, Camel Run, Chatham Run; brook trout, Hyner Run, Long Run, Cooks Run, Tangascootack Creek, Cedar Run, Rattle Snake Run, Big Fishing Creek, Chatham Run, Hammersley Fork, Big Run, Beaver Dam Run, Kettle Creek, Cherry Creek, Long Run; black bass, Kettle Creek, Pine Creek, Bald Eagle Creek.

Columbia—catfish, Huntingdon Creek, Fishing Creek, Roaring Creek, Green Creek; sunfish, Roaring Creek, Little Fishing Creek, Green Creek, Huntingdon Creek, Fishing Creek; frogs, Fishing Creek, Green Creek, Huntingdon Creek, Roaring Creek, Little Fishing Creek; brook trout, Roaring Creek; black bass, Huntingdon Creek, Fishing Creek.

Crawford—catfish, Pymatuning Dam, Crooked Creek, Canadohta Lake, Pymatuning Reservoir; sunfish, Pymatuning Reservoir, Pymatuning Dam, Canadohta Lake, Clear Lake, Crooked Creek; frogs, Canadohta Lake, Pymatuning Reservoir, Pymatuning Dam; minnows, Crooked Creek; black bass, Oil Creek, French Creek, Conneaut Creek, Conneaut Lake.

Cumberland—catfish, Fuller Lake, Henry Clay Ore Pit, Conodogninet Creek, Carlisle Water House Dam, Laurel Ore Pit; sunfish, Henry Clay Ore Pit, Fuller Lake, Laurel Ore Pit, Conodogninet Creek, Carlisle Water House Dam on Conodogninet Creek; frogs, Carlisle Water House Dam on Conodogninet Creek, Fuller Lake, Henry Clay Ore Pit, Laurel Ore Pit, Conodogninet Creek; brook trout, Mountain Creek; black bass, Carlisle Water House Dam on Conodogninet Creek, Conodogninet Creek, Susquehanna River, Yellow Breeches Creek.

Dauphin—catfish, Swatara Creek, Penna. Canal or Highspire Reservoir, Wildwood Lake, Susquehanna River, Powells Creek, Manada Creek, Conewago Creek, Stony Creek; sunfish, Swatara Creek, Penna. Canal Reservoir, Wildwood Lake, Susquehanna River, Stony Creek, Powells Creek, Conewago Creek, Manada Creek; brook

trout, Clarks Creek; black bass, Susquehanna River, Conewago Creek; frogs, Stony Creek, Powells Creek, Manada Creek, Conewago Creek, Swatara Creek, Penna. Canal Reservoir, Wildwood Lake, Susquehanna River.

Delaware—black bass, Darby Creek, Chester Creek.

Elk—catfish, Ridge Water Works Reservoir; sunfish, Ridgway Water Works Reservoir; frogs, Ridgway Water Works Reservoir; brook trout, Bear Creek, Trout Run, Paige Run.

Erie—catfish, French Creek, West Branch French Creek, Conneaut Creek, Dam on Runion Creek; sunfish, French Creek, Conneaut Creek, Dam on Runion Creek; frogs, Dam on Runion Creek, Conneaut Creek; black bass, Conneaut Creek, French Creek.

Fayette—brook trout, Beaver Run, Back Creek, Dunbar Creek.

Forest—catfish, Allegheny River; brook trout, Little Coon Creek, East Hickory Creek, Coleman Run, Hemlock Creek, The Branch or North Salmon Creek, Lamentation Run, Coon Creek, Ross Run, Bear Creek, Hunter Run; black bass, Allegheny River.

Franklin—yellow perch, Indian Lake; catfish, Indian Lake; sunfish, Indian Lake; frogs, Indian Lake; brook trout, Conococheague Creek, Mud Run, Red Run, Broad Run, Trout Run; black bass, Conococheague Creek, Conodoguinet Creek, West Branch Conococheague Creek, Conococheague Creek.

Fulton—catfish, Cove Creek, Licking Creek; sunfish, Cove Creek, Licking Creek; frogs, Cove Creek, Licking Creek; brook trout, Roaring Run, South Brush Creek, Oregon Creek, Wooden Bridge Creek, Little Brush Creek, Nine Mile Creek, Little Anghwick Creek; black bass, Licking Creek.

Greene—catfish, Whitley Creek, South Fork of Ten Mile Creek, Penna. Fork, Browns Fork Creek, South Fork of Dunkard Fork of Wheeling Creek, North Fork of Dunkard Fork of Wheeling Creek, Wheeling Creek, Dunkard Creek, Muddy Creek; sunfish, South Fork of Ten Mile Creek, Penna. Fork of Fish Creek, Browns Fork Creek, Whiteley Creek, South Fork of Dunkard Fork of Wheeling Creek, North Fork of Dunkard Fork of Wheeling Creek, Wheeling Creek, Dunkard Creek, Muddy Creek; frogs, South Fork of Ten Mile Creek, Penna. Fork, Browns Fork, Whiteley Creek, South Fork of Dunkard Fork of Wheeling Creek, North Fork of Dunkard Fork of Wheeling Creek, Wheeling Creek, Dunkard Creek, Muddy Creek; black bass, Wheeling Creek, Dunkard Fork Creek, North Fork of Dunkard Fork of Wheeling Creek, South Fork of Wheeling Creek, South Fork of Ten Mile Creek, Whiteley Creek.

Huntingdon—catfish, Frankstown Branch of Juniata River, Penn Central Dam on Frankstown Branch of Juniata River, Shavers Creek, Standing Stone Creek, Juniata River, Little Trough Creek, Penn Central Dam on Raystown Branch of Juniata River, Raystown Branch of Juniata River, Anghwick Creek, Sideling Hill Creek; sunfish, Frankstown Branch of Juniata River, Penn Central Dam of Frankstown Branch of Juniata River, Shavers Creek, Standing Stone Creek, Little Trough Creek, Penn Central Dam on Raystown Branch of Juniata River, Juniata River, Anghwick Creek, Sideling Hill Creek; frogs, Frankstown Branch of Juniata River, Penn Central Dam on Franks-

town Branch of Juniata River, Shavers Creek, Standing Stone Creek Juniata River, Little Trough Creek, Penn Central Dam on Frankstown Branch of Juniata River, Raystown Branch of Juniata River, Aughwick Creek, Sideling Hill Creek; brook trout, Spruce Creek, Little Trough Creek, Laurel Run, Nine Mile Run, Licking Creek, Shaver Creek; black bass, Penn Central Dam on Frankstown Branch Juniata River, Penn Central Dam on Raystown Branch of Juniata River, Juniata River, Juniata Valley Country Club Dam on Juniata River, Raystown Branch Juniata River, Frankstown Branch Juniata River, Standing Stone Creek, Aughwick Creek.

Indiana—catfish, Cush Cushion Creek; sunfish, Cush Cushion Creek; frogs, Cush Cushion Creek; brook trout, Laurel Run, Mardis Run, Toms Run, South Branch of Twolick Creek, Little Yellow Creek; black bass, Little Mahoning Creek, Yellow Creek.

Jefferson—brook trout, Horam Run, Cathers Run, East Branch of Mahoning Creek, Mill Creek, South Branch of North Fork of Red Bank Creek, Camp Run; black bass, Red Bank Creek, Little Sandy Creek.

Juniata—catfish, Pomeroy's Dam on Tuscarora Creek, Kauffman Dam, Cocolamus Creek, Tuscarora Creek, Juniata River, Lost Creek, Licking Creek; sunfish, Kauffman Dam, Pomeroy's Dam, Tuscarora Creek, Cocolamus Creek, Juniata River, Lost Creek, Licking Creek; frogs, Licking Creek, Juniata River; brook trout, Horse Valley Run, Willow Run, Liberty Run, Licking Creek, Big Run; black bass, Tuscarora Creek, Juniata River.

Lackawanna—pickerel, Heart Lake, Sicklers Pond, Mountain Ice Co. Dam No. 1 on Bowmans Creek, Sheridan Lake; catfish, Mountain Lake, Moosic Lake, Whippoorwill Pond, Baylor's Pond, Windfall Pond, Heart Lake, Handsome Lake, Sheridan Lake, West End Lake, Newton Lake, Sickler Pond, Deer Lake, Mud Pond, Crystal Lake, Chapman Lake, Johnson Lake, Ford Pond, Lower Klondyke Lake; sunfish, Whippoorwill Pond, Mountain Lake, Moosic Lake, Chapman Lake, Mountain Ice Co. Dam No. 1 on Bowmans Creek, Lower Klondyke Lake, West End Lake, Newton Lake, Sickler Pond, Deek Lake, Mud Pond, Johnson Lake, Sheridan Lake, Baylors Pond, Windfall Pond, Handsome Lake, Heart Lake; frogs, Moosic Lake, Baylors Pond, Windfall Pond, Chapman Lake, Mountain Ice Co. Dam No. 1 on Bowmans Creek, Lower Klondyke Lake, West End Lake, Sicklers Pond, Deer Lake, Mud Pond, Johnson Lake, Handsome Lake, Heart Lake.

Lancaster—yellow perch, Safe Harbor Dam, Holtwood or McCall Ferry Dam, Conowingo Dam; minnows, Conowingo Dam on Susquehanna River, Safe Harbor Dam on Susquehanna River, Holtwood or McCall's Ferry Dam; catfish, Holtwood Dam Conowingo Dam on Susquehanna River, Safe Harbor Dam on Susquehanna River, Muddy Creek, Conowingo Creek, West Branch Octoraro Creek, Mill Creek, Hammer Creek, Stovers Dam on Indian Creek; yellow perch, Holtwood Dam on Susquehanna River, Conowingo Dam on Susquehanna River, Safe Harbor Dam on Susquehanna River; sunfish, Conowingo Dam on Susquehanna River, Holtwood Dam on Susquehanna River, Safe Harbor Dam on Susquehanna River, Muddy Creek, Conowingo Creek, West Branch Octo-

raro Creek, Mill Creek, Hammer Creek, Stovers Dam on Indian Creek; brook trout, Rock Run, Stewarts Run, Muddy Run, Middle Creek, Swarr Run; frogs, Safe Harbor Dam on Susquehanna River, Holtwood Dam on Susquehanna River, Conowingo Dam on Susquehanna River, Muddy Creek, West Branch Octoraro Creek, Mill Creek, Hammer Creek, Stovers Dam on Indian Creek; black bass, Conowingo Creek, Little Creek, Muddy Creek, Cocalico Creek, Cone-stoga Creek, Big Chickies Creek, Octoraro Creek, McCall's Ferry Dam on Susquehanna River, Safe Harbor Dam on Susquehanna River.

Lawrence—catfish, Quarry Hole No. 5, Lower Pump House Dam, Carbon Quarry Hole; sunfish, Quarry Hole No. 5, Lower Pump House Dam, Carbon Quarry Hole; brook trout, Taylor Run, Big Run.

Lebanon—catfish, Stavers Dam, Water Works Dam, Stracks Dam, Lights Dam, Strause Dam; sunfish, Stavers Dam, Water Works Dam, Stracks Dam, Lights Dam, Strauss Dam; frogs, Strauss Dam; black bass, Little Swatara Creek, Swatara Creek.

Lehigh—suckers, Little Lehigh River, Jordan Creek; catfish, Alburts Mine Hole, Onteloune Creek, Lake Thomas, Ormrod Mine Hole, Henninger Mine Hole, Jordan Creek, Swartz Mine Hole, Smoyer Milling Co. Dam on Little Lehigh Creek; sunfish, Ormrod Mine Hole, Lake Thomas, Onteloune Creek, Alburts Mine Hole, Henninger Mine Hole, Jordan Creek, Swartz Mine Hole, Smoyer Milling Co. Dam on Little Lehigh Creek; frogs, Ormrod Mine Hole, Lake Thomas, Onteloune Creek, Alburts Mine Hole, Henninger Mine Hole, Jordan Creek.

Luzerne—yellow perch, Harveys Lake; minnows, Harveys Lake, Muangola Lake, Sylvan Lake; pickerel, Browns Pond, Cummings Pond, Ice Lake on Wrights Creek, Sylvan Lake, Grassy Pond, Three Cornered Lake, Nuangola Lake; brown trout, Wapwallopen Creek, Kitchen Creek, Huntingdon Creek; catfish, Harveys Lake, Sugar Notch Dam, Bryants Ice Dam on Harveys Run, Browns Pond, Ider Pond, Penn Lake on Wrights Creek, White Haven Dam on Lehigh River, Sylvan Lake, Grassy Pond, North Pond, Three Cornered Lake, Nuangola Lake, Ice Lake on Wrights Creek, Cummings Pond, Mountain Ice Co. Dam No. 1 on Bowmans Creek; sunfish Sugar Notch Dam, Bryant Ice Dam on Harveys Run, Harveys Lake, Browns Pond, Cummings Pond, North Pond, Ider Pond, Penn Lake on Wrights Creek, White Haven Dam on Lehigh River, Three Cornered Lake, Nuangola Lake, Ice Lake on Wrights Creek, Sylvan Lake, Grassy Pond; frogs, Sugar Notch Dam, North Pond; black bass, Harveys Lake.

Lycoming—yellow perch, Lycoming Creek; catfish, Lycoming Creek, Loyalsock Creek, Pine Creek; sunfish, Loyalsock Creek, Lycoming Creek, Pine Creek; frogs, Lycoming Creek, Loyalsock Creek; black bass, Muncy Creek, Loyalsock Creek, Lycoming Creek, Pine Creek.

McKean—catfish, Allegheny River, Water Works Reservoir No. 1, Norwich Dam on Potato Creek; sunfish, Allegheny River, Norwich Dam on Potato Creek, Water Works Reservoir No. 1; frogs, Allegheny River; black bass, Allegheny River.

Mercer—catfish, Sandy Lake, Shenango River, Pymatuning Creek, Furnace Pond,

Sandy Creek, Little Shenango River, Wolf Creek, West Branch of Wolf Creek, Neshannock Creek, Otter Creek, Cool Spring; sunfish, Sandy Lake, Shenango River, Pymatuning Creek, Furnace Pond, Sandy Creek, Little Shenango River, Wolf Creek, West Branch of Wolf Creek, Neshannock Creek, Otter Creek, Cool Spring Creek; frogs, Sandy Lake, Shenango River, Pymatuning Creek, Furnace Pond, Sandy Creek, Little Shenango River, Wolf Creek, West Branch of Wolf Creek.

Mifflin—catfish, Beaver Dam Run, Juniata Valley Country Club Dam, Jacks Creek, Juniata River; sunfish, Juniata Valley Country Club Dam, Juniata River, Jacks Creek; frogs, Juniata Valley Country Club Dam; brook trout, Laurel Run, Havice Creek, Treaster Valley Run, Licking Creek, Tea Creek, East Branch of Kishacoquillas Creek; black bass, Juniata River.

Monroe—yellow perch, Reeder's Ice Pond, Still Water Dam; catfish, Delaware River, Arlington Lake, Gregory Ice Pond, Weir Lake, Coleman Pond, Hawk Eye Pond, Snow Hill Dam, Lake Mineola, Still Water Dam, Half Moon Pond; frogs, Gregory's Ice Dam, Arlington Lake, Coleman Pond, Weir Lake, Mountain Ice Dam No. 1, Echo Lake, Pocono Summit Lake, Half Moon Pond, A. L. Rake Dam, Little Saylor Lake, Youngs Pond; sunfish, Still Water Dam, Delaware River, Arlington Lake, Gregory Pond, Coleman Pond, Weir Lake, Lake Mineola, Hawkeye Pond; black bass, Delaware River.

Montgomery—catfish, Potts Quarry Hole, Ridge Valley Creek; sunfish, Potts Quarry Hole, Ridge Valley Creek; brook trout, Mill Creek; black bass, Perkiomen Creek, Northeast Branch Perkiomen Creek, Northwest Branch Perkiomen Creek, Skippack Creek, Pennypack Creek.

Montour—suckers, Chillisquaque Creek; yellow perch, Chillisquaque Creek; catfish, Mahoning Creek, Chillisquaque Creek; sunfish, Mahoning Creek, Chillisquaque Creek; frogs, Mahoning Creek; black bass, Chillisquaque Creek.

Northampton—pickerel, Brays Lake; catfish, Hellertown Park Dam Reservoirs 1, 2 and 3, Hokendauqua Creek; yellow perch, Hellertown Park Dam Reservoirs 1 and 2; sunfish, Hokendauqua Creek, Hellertown Park Dam Reservoir No. 1 and 2; brook trout, Saucon Creek; black bass, Delaware River.

Northumberland—catfish, Chillisquaque Creek, Warrior Run, Mahantango Creek; sunfish, Chillisquaque Creek, Warrior Run, Mahantango Creek; frogs, Chillisquaque Creek; black bass, Chillisquaque Creek.

Perry—pickerel, Shermans Creek; catfish, Cocolamus Creek, Juniata River, Shermans Creek, Susquehanna River; sunfish, Cocolamus Creek, Juniata River, Shermans Creek, Susquehanna River; frogs, Shermans Creek, Susquehanna River, Cocolamus Creek, Juniata River; brook trout, Laurel Run, Hustons Run; black bass, Susquehanna River, Buffalo Creek, Juniata River, Shermans Creek.

Pike—yellow perch, Elick Pond, Pecks Pond, Twin Lakes, Promise Land Pond; minnows, Twin Lakes, Lake Wallenpaupack, White Deer Lake; pickerel, Lake Minisink, Mud Pond, Pecks Pond, White Deer Lake, Promise Land Pond, Westcolang Lake, Lake Wallenpaupack; catfish, Lake Wallenpaupack, Twin Lakes, Pecks Pond, Promise

Land Pond, Elick Pond, Mud Pond, Big Walker Lake, Greeley Lake, Big Tink Pond, Lake Westcolang, Bruce Lake, White Deer Lake, Shohola Falls Dam, Sawkill Pond, Taminent Lake, Forest Lake, Delaware River, Promise Land Pond, Pecks Pond, Fairview Lake, Welcome Lake, Mud Pond, Lake Minisink, View Lake; sunfish, Packs Pond, Lake Wallenpaupack, Promise Land Pond, Welcome Lake, Lake Minisink, Mud Pond, Sims Pond, Twin Lakes, Pecks Pond, Taminent Lake, Forest Lake, Delaware River, Big Tink Pond, Lake Westcolang, Bruce Lake, White Deer Lake, Greeley Lake, Shohola Falls Dam, Sawkill Pond, Pecks Pond; black bass, Twin Lakes, Delaware River, Little Swatara Creek, Lake Wallenpaupack, P. P. and L. Dam; catfish, Rose Lake; frogs, Rose Lake; brook trout, Genesee Fork Pine Creek, West Branch Pine Creek, Eleven Mile Creek, Cross Fork Creek, East Fork of First Fork Sinnemahoning Creek.

Schuylkill—catfish, Sweet Arrow Lake, Pine Creek, Reinerton Mine Holes No. 1, 2 and 3; yellow perch, Sweet Arrow Lake; frogs, Reinerton Mine Holes No. 1, 2 and 3, Pine Creek; sunfish, Sweet Arrow Lake, Pine Creek, Reinerton Mine Holes No. 1, 2 and 3; brook trout, Locust Creek, Bear Creek, Kelayres Rod and Gun Club Dam, Neifert Creek; black bass, Little Swatara Creek.

Snyder—catfish, Penns Creek, Richfield Dam on West Branch of Mahantango Creek, Middle Creek, North Branch Middle Creek, Mahantango Creek, Middle Creek; sunfish, Penns Creek, Middle Creek, Richfield Dam on West Branch Mahantango Creek, North Branch Middle Creek, Mahantango Creek, Middle Creek; black bass, Penns Creek, Middle Creek, P. P. & L. Dam, Middle Creek North Branch, Middle Creek; frogs, Penns Creek, Middle Creek, North Branch Middle Creek, Richfield Dam on West Branch Mahantango Creek.

Somerset—minnows, Youghiogheny River; catfish, Youghiogheny River, Bigby Creek, Donaldson Dam, Rowena Lake, Kimberly Run, West Branch Coxes Creek, Middle Creek; sunfish, Youghiogheny River, Bigby Creek, Elk Lick Creek, Donaldson Dam, Rowena Lake, Middle Creek, West Branch Coxes Creek, Kimberly Run; frogs, Youghiogheny River, Bigby Creek, Donaldson Dam, Rowena Lake, Middle Creek, West Branch Coxes Creek, Kimberly Run; brook trout, Brush Creek, Shaffer Run; black bass, Youghiogheny River.

Sullivan—pickerel, Painters Den Pond; catfish, Painters Den Pond, Hunter Lake, Eagles Mere Lake, Mud Lake, Williams Lake, Elk Lake, Splash Dam on Mehoopany Creek; sunfish, Hunter Lake, Eagles Mere Lake, Painters Den Pond; frogs, Painters Den Pond, Hunters Lake, Eagles Mere Lake.

Susquehanna—pickerel, Wrighter Lake, Schooley Pond; minnows, Wrighter Lake; catfish, East Lake, Forest Lake, Stearns Lake, Beaver Pond, Montrose Lake, Heart Lake, Schoolys Pond, Arrow Head Lake, Wrighter Lake, Upper Lake, Middle Lake, Tyler Lake, Tingley Lake, Lewis Lake, Cot-

terrell Lake, Round Lake, Lakeside Pond, North Branch Susquehanna River, South Pond, Pages Lake, Big Elk Lake, Comforts Pond, Lord Pond, Hells Half Acre, Idlewild Lake, Card Pond, Lower Lake, Fox Pond, Tuscarora Lake, Bigsby Pond, Walker Lake, Butler Lake, Alford Pond; sunfish, Beaver Pond, Stearns Lake, Arrow Head Lake, Schoolys Pond, Heart Lake, Montrose Lake, East Lake, Forest Lake, Comforts Pond, Butler Lake, Alford Pond, North Branch Susquehanna River, Lakeside Pond, Wrighter Lake, Middle Lake, Tyler Lake, Tingley Lake, Lewis Lake, Cotterell Lake, Round Pond, Upper Lake; frogs, Forest Lake, East Lake, Montrose Lake, Heart Lake, Schoolys Pond, Arrow Head Lake, Upper Lake, Middle Lake, Tyler Lake, Tingley Lake, Lewis Lake, Cotterell Lake, Round Pond, Lakeside Pond, Butler Lake, Alford Pond, Comforts Pond; black bass, North Branch Susquehanna River.

Tioga—brook trout, Norris Brook, Kettle Creek, Four Mile Run.

Union—catfish, Penns Creek, Buffalo Creek, Little Buffalo Creek, White Deer Hole Creek, Laurel Park Dam, New Berlin Dam, Turtle Creek, P. P. & L. Dam on Penns Creek; sunfish, Penns Creek, New Berlin Dam on Penns Creek, Turtle Creek, P. P. & L. Co. Dam on Penns Creek; frogs, Laurel Park Dam on Penns Creek, New Berlin Dam on Penns Creek, Penns Creek, Turtle Creek, P. P. & L. Co. Dam on Penns Creek; black bass, Buffalo Creek, Penns Creek, White Deer Hole Creek.

Venango—catfish, Allegheny River, French Creek; sunfish, Allegheny River, French Creek; brook trout, Tarr Kill Creek, Stewart Run, Upper Two Mile Run, East Sandy Creek, Pit Hole Creek; black bass, Allegheny River, Sandy Creek, French Creek.

Warren—catfish, Columbus Dam on Brokenstraw Creek; sunfish, Columbus Dam on Brokenstraw Creek; frogs, Columbus Dam on Brokenstraw Creek; calico bass, Columbus Dam on Brokenstraw Creek; minnows, Columbus Dam on Brokenstraw Creek; black bass, Brokenstraw Creek, Conewago Creek, Allegheny River.

Washington—catfish, No. 53 Reservoir, Little Charters Creek, Ten Mile Creek, Little Ten Mile Creek, Buffalo Creek, Cross Creek, Rankin Run; sunfish, No. 53 Reservoir, Little Charters Creek, Ten Mile Creek, Little Ten Mile Creek, Buffalo Creek, Cross Creek, Rankin Run; frogs, No. 53 Reservoir, Little Charters Creek, Ten Mile Creek, Little Ten Mile Creek, Buffalo Creek, Cross Creek, Rankin Run; black bass, Ten Mile Creek, Little Charters Creek, Cross Creek, Buffalo Creek.

Wayne—pickerel, Lake Henry, Brookings Pond, Island Pond, Long Pond, White Oak Pond; minnows, Goose Pond, Independent Lake; brown trout, West Branch of Wallenpaupack Creek; catfish, Shehawken Lake, Lake Wallenpaupack, Kizer Dam, Long Pond, North Jersey Lake, Long Pond (Lake Paupack Twp.) Upper Twin Lake, Howells Pond, Duck Harbor Lake, Lake Como, Island Lake, Goose Lake, Lower Twin Lake, Kline Pond, Delaware River, Sly Lake, Starlight Lake, Elk Lake, Lake Ladore, Keens Pond, Bunnells Pond, Seeleyville Pond, Bone Pond, Independent Lake, Four Mile Pond, Coxton Lake, Crackenburg Pond, Watawgo Lake, Brookings Pond, Long Pond (Preston Twp.), Bigelow Lake, Rose Pond,

Little Union Lake, Adams Lake; sunfish, Cadjaw Pond, Lake Henry, Upper Twin Lake, White Oak Pond, Howells Pond, Duck Harbor Lake, Lake Como, North Jersey Lake, Long Pond (Lake Paupack Twp.), Goose Pond, Long Pond, Shehawken Lake, Island Lake, Wallenpaupack Lake, Kizer Dam on Middle Creek, Lower Twin Lake, Delaware River, Kleins Pond, Keens Pond, Lake Ladore, Elk Lake, Sly Lake, Starlight Lake, Rose Pond, Little Union Pond, Adams Lake, Watawgo Lake; frogs, Howells Pond, Duck Harbor Pond, Lake Como, Kizer Dam on Middle Creek, Goose Pond, North Jersey Lake, Long Pond (Lake Paupack Twp.), Lake Henry, Upper Twin Lake, White Oak Pond, Elk Lake, Lake Ladore, Keens Pond, Sly Lake, Starlight Lake, Rose Pond, Little Union Lake, Adams Lake, Watawgo Lake; brook trout, Johnsons Creek, Big Branch Dyberry Creek, Shad Pond Creek, East Branch Starrucca Creek, Shehawken Creek, North Branch Calkins Creek; black bass, Delaware River, Lackawaxen River.

Westmoreland—catfish, Beatty Reservoir, Bagley Reservoir, Four Mile Run; sunfish, St. Vincent's Lake, Greenwalt Dam, Bagley Reservoir, Four Mile Run; frogs, Bagley Reservoir, Four Mile Run; brook trout, Furnace Run, Powder Mill Run, Camp Run.

Wyoming—catfish, North Branch Susquehanna River, Carey Lake, Nigger Lake, Chamberlain Pond, McClure Pond; sunfish, Mud Pond, North Branch Susquehanna River, McClure Pond, Chamberlain Pond, Carey Lake, Nigger Pond; frogs, Mud Pond, North Branch Susquehanna River, Carey Lake, Nigger Pond, McClure Pond, Chamberlain Pond; black bass, North Branch Susquehanna River, Tunkhannock Creek.

York—catfish, Silver Lake, Krentz Creek, Wrightsville Quarry Hole; yellow perch, Silver Lake; sunfish, Silver Lake, Krentz Creek; brook trout, Otter Creek; black bass, Bermudian Creek, Little Conewago Creek, Conewago Creek, South Branch Codorus Creek.

Bothersome Bass

There's a moral to this fishing incident submitted by Phil Platt, president of the Izaak Walton League, Pennsylvania Division, and it might be expressed in "never keep under-size game fish on a stringer simply because they're taking the bait." The incident follows:

While patrolling in the vicinity of Darby Creek, Delaware County, Deputy Game Protectors Joseph Palmer and Ed Dougherty came upon two fishermen, who had captured four smallmouth bass and had them secured on a stringer. Two of the bass proved to be under size and when the fishermen were questioned on this they stated that they had been so annoyed by the persistence of these under-sized fish, they felt they were practising good conservation in tying them up so they would not be caught again.

The two officers derived considerable amusement from this incident as did also the magistrate who fined the fishermen \$10.00 each.



HERE ^A_N^D THERE IN ANGLERDOM



The old canal bed, located between Bloomsburg and Catawissa on the North Branch of the Susquehanna River, recently yielded a wall-eyed pike and largemouth bass to Kerny Pottier, of Catawissa, R. D. No. 3, that would do credit to any water, according to Harry R. Carl, warden at Elysburg, Northumberland County. The pike, 28 inches in length, weighed when dressed $4\frac{1}{2}$ pounds, while the bass, 24 inches, tipped the scales at $5\frac{1}{2}$ pounds.

October catches of bass on the North Branch of the Susquehanna in the vicinity of Towanda were good, writes Warden Myron Shoemaker of Laceyville. Using a bass bug, Grover Marcey landed in one afternoon eight fine bass. Two of the catch measured 16 inches apiece, three were 14 inches each, and three, 12 inches.

Speaking of tough breaks while fishing, the experience of Russell Wilson on the Allegheny recently was a heart breaker. Wilson had landed a 22-inch smallmouth bass of record standards. While rowing to shore after making the catch, the stringer by which the fish was fastened to the boat snapped and the catch was lost.

Listed with fine catches of brown trout taken from Centre County waters this year, was a $19\frac{3}{4}$ -inch brownie weighing three pounds one ounce. It was caught by R. Cameron Heverly. Fishing in muddy water one day during the trout season, Vincent Bauer, of Bellefonte, scored a catch of ten nice trout, the largest measuring 13 inches in length and the smallest eight inches.

Those big smallmouth bass in the Conodoguinet Creek, producer of the record fish in this class last season, were on a hitting spree in October, according to Warden George James of Carlisle. Three bass having a combined weight of $9\frac{1}{2}$ pounds were taken on crayfish by Jake Sutton, Carlisle. Ed Shultz, of Carlisle, connected with a $4\frac{1}{2}$ -pounder and landed it. William Wilson, of Carlisle, caught a smallmouth weighing 4 pounds. Two bass, each weighing two pounds, were caught on plug by Ed Jones, Carlisle.

Lake Erie produced some fine muskellunge fishing late in October, writes Warden W. E. Briggs, of Erie. Two Muskies, one weighing 28 pounds, the other 17, were landed by angler Lynch, of Erie. One day's checkup revealed that 22 big muskies had been taken from the bay.

Fishing flies for bass on the North Branch in October, C. W. Reitenauer, of Lacey-



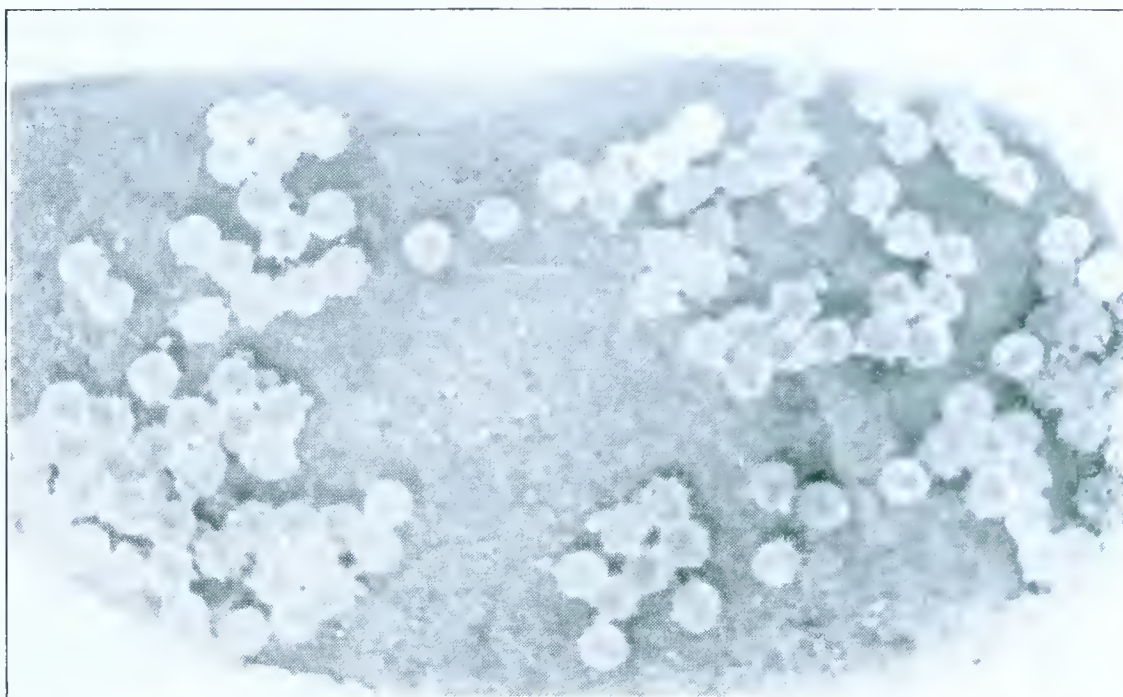
A BRACE OF FRENCH CREEK MUSKIES

ville, caught six fine smallmouths. Four measured 17 inches apiece, one was 16 inches and one $18\frac{3}{4}$ inches. A bass weighing $2\frac{1}{2}$ pounds was taken by Frank Kerrick and Bruce Dodge, of Wyalusing, landed a smallmouth measuring 19 inches.

Oneida dam in Butler County continued to furnish good fishing for largemouth bass during October, according to Special Warden J. H. Bergman, of Butler. Two 18-inch

largemouths weighing $3\frac{1}{2}$ pounds apiece were caught by Harry Smith, of Butler. Chris Ferne, of Butler, caught two measuring 14 inches each.

Sam Bevan, of Scranton, caught two nice fish in Lake Sheridan, Wyoming County, writes Warden Edgar Davis, of Scranton. His catch consisted of a 20-inch smallmouth bass and a 27-inch pickerel. It was made on live minnows.



TWO STAGES IN THE DEVELOPMENT OF A PEERLESS GAME FISH, THE SMALLMOUTH BASS. AT TOP ARE SHOWN BASS EGGS ON THE NEST, AND BELOW, ONE-DAY OLD SMALLMOUTHS. NOTE PROMINENT SIZE OF YOLK SACS ON THESE BABY FISH

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